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A GUIDE for STATEWIDE FOREST RESOURCES PLANNING



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NORTHEASTERN AREA
STATE & PRIVATE FORESTRY
USDA FOREST SERVICE
NA-TP-6 October 1980



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STATE FOREST RESOURCES PLANNING GUIDE

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FOREWORD

The Forest Service recognizes that the mandates, needs, capabilities, and desires for doing State forest resource planning and incorporating the planning with the State management systems vary greatly from State to State. Therefore, this Planning Assistance Program guide is general in nature and encompasses a broad range of program opportunities. Although it is intended to provide a uniform set of guidelines, it allows flexibility for individual States to address specific situations. It recognizes that some Planning Assistance Program priorities may be established by national needs and objectives.

This revision amends the "Guide for Statewide Forest Resources Planning" published by Northeastern Area, State and Private Forestry (NA-TP-6), October 1980. The revised guide is designed to help State Foresters complete or update their State Forest Resources Plans, establish or enhance the planning function as an integral function of the forestry agency, and provide forest resource data and advice to other Federal, State, and local planning agencies and programs. It is a working document subject to change. Users are encouraged to contribute to its improvement by sending comments to:

USDA Forest Service
NA, S&PF
Forest Resources Planning
370 Reed Road
Broomall, PA 19008

Amendments will be prepared and sent as needed.

PREFACE

The purpose of this document is to:

1. Achieve a uniform understanding within the Forest Service and among the States about the nature and purpose: of the Planning Assistance Program (PAP); State Forest Resources Plans (SFRP) and their relationship to the planning of other agencies and the Forest Service; and of the technical assistance offered to the States by the Forest Service.
2. Provide forest resource information to State Forestry agencies for the development of national, regional, State and local programs.
3. Provide the States with general information on how they may be involved in future RPA and other Forest Service planning.
4. Establish a uniform set of guidelines for the foundation of the Planning Assistance Program.

Chapter I - Introduction

A. Goal of the Planning Assistance Program (PAP)

The goal for the Planning Assistance Program (PAP) is to meet the production requirements of national, state, and local programs on non-Federal lands through effective program planning by State Forestry agencies. The Planning Assistance Program enables State Forestry agencies and the Forest Service to work together in carrying out the provisions of the Cooperative Forest Act of 1978 (PL 95-313). This goal is consistent with those of the Act (Sec. 2). Through PAP the individual cooperative Federal/State forestry programs are brought together, coordinated, and programmed to produce a synergistic effect. The effectiveness of the combined programs is enhanced by planned public participation in which resource issues are identified and addressed.

B. Authorization

The Cooperative Forestry Assistance Act of 1978, authorizes the Forest Service to cooperate with State Forestry agencies in the preparation of statewide forest resources programs.

1. Section 8(a) states: "To aid in achieving maximum effectiveness in programs and activities conducted under this Act, the Secretary (of Agriculture) is authorized to provide financial, technical, and related assistance to State Foresters or equivalent State officials for the development of stronger and more efficient State organizations that will enable them to fulfill better their responsibilities for the protection and management of non-Federal forest lands. Assistance under the sub-section may include, but will not be limited to, assistance in matters relating to organization management, program planning and management, budget and fiscal accounting services, personnel training and management, information services, and recordkeeping. Assistance under this subsection may be extended only upon the request by State Foresters or equivalent State officials."
2. Section 8(b) states: "To ensure that data regarding forest lands is available for and effectively presented in State and Federal natural resources planning, the Secretary is authorized to provide financial, technical, and related assistance to State Foresters or equivalent State officials in the assembly, analysis, display, and reporting of State forest resources data, in the training of State forest resources planners, and in participating in natural resources planning at the State and Federal levels. The Secretary shall restrict assistance under this subsection to the implementation of the forestry aspects of State and Federal natural resources planning conducted under other laws...."

3. Section 8(c) states: "To ensure that new technology is introduced, new information is integrated into existing technology, and forest resources research findings are promptly made available to State forestry personnel, private forest landowners and managers, vendors, forest operators, wood processors, public agencies, and individuals, the Secretary is authorized to carry out a program of technology implementation."

C. Responsibilities

1. Forest Service. Develop national policy and regulations; provide technical leadership; administrative coordination with USDA; liaison with national groups, such as the National Association of State Foresters; liaison with National Forest System and Forest Research; and overall guidance to regional foresters and area directors.
2. Forest Service, Area Director, Forest Resources Planning. Provide technical and financial assistance to state forestry agencies. Assemble, evaluate, and summarize state forest resources data as required for national programs. Provide appropriate training to state forestry personnel and planning consultation services to state forestry agencies.
3. State Foresters, State forest resources planners. Assemble and analyze forest resources data; participate in local, statewide, and national forest resources planning; where feasible, develop a staff capacity for resources planning that is linked to State programming and budgeting, based on public participation, and responsive to the planning needs of appropriate national, State, and local programs.

D. Major Planning Assistance Program Emphasis

Keeping the "publics" informed and involved and preparing a comprehensive forest resources plan are the major concerns of the PAP. The plan will be the foundation for on-going management systems of programming and budgeting. For most States, this means establishing a staff group to accomplish these goals. Staff responsibilities will include monitoring and evaluating programs; policy analysis and development; and long-range planning. States will be encouraged to participate in local planning and other Federal and State resources programs.

1. State Forest Resources Planning Process. The Forest Service program will assist each State to develop and use, on a continuing basis, a systematic State Forest Resources planning process leading to a program with the following characteristics:

STATE FOREST RESOURCES PLANNING HIERARCHY

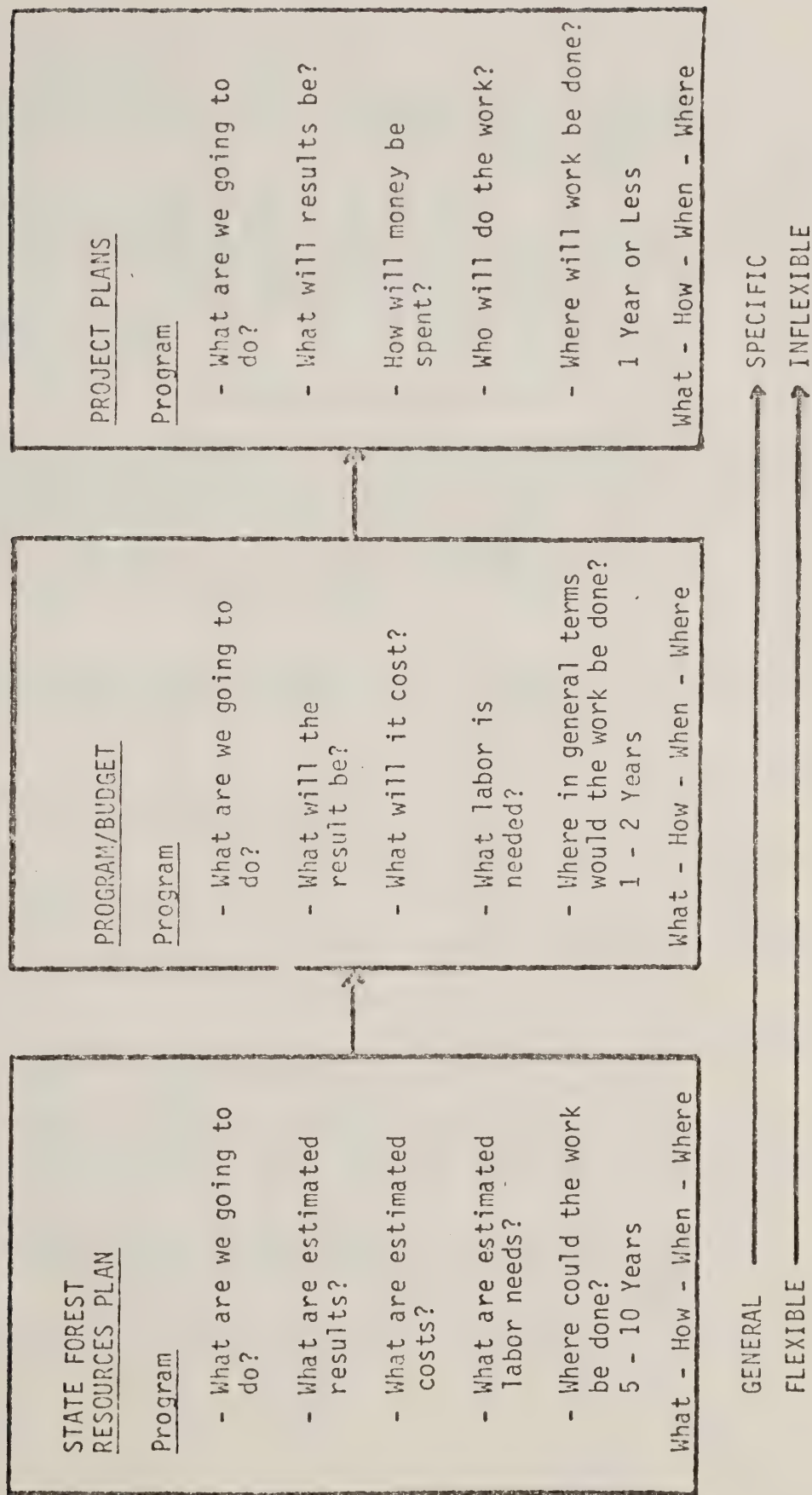


Figure 1

- a. The program should consider all forest resources and their interrelations on all forested lands, regardless of ownership. Forest resources include, fish and wildlife, forage, outdoor recreation opportunities, timber, water, and esthetic values.
- b. The program should be developed using an issue driven, systematic planning process based on management goals. Resolving issues raised by the public will help make the program more responsive to the needs, priorities, and interests of landowners and users. Use of the most up-to-date data builds the credibility of the program and increases the probability of successful implementation.
- c. The program should include a carefully prepared and professionally executed Public Involvement Program (PIP). The PIP will involve a high degree of external awareness with a wide-based input. A properly conducted PIP is an integral part of the planning process. It gives the greatest opportunity for successful implementation of the State Forest Resources Program.

The entire public involvement process should be fully documented and a record preserved for public inspection and future administrative review.

- d. The program should utilize the current reporting systems for cooperative programs as a basis for a monitoring procedure to determine program effectiveness.
- e. The program should be specific to resolve issues and management goals. It should have targets and be accountable to facilitate measurement of accomplishment; and it should be realistic to build credibility.
- f. The program should be a multi-purpose document. It should guide the State Forester's program and be complementary to other state renewable resource plans and programs such as wildlife, water quality, recreation, and energy production. It is the State Forester's principle guiding document.
- g. The program should provide the budget framework that will assure coordinated and balanced implementation of all forest resource management activities and programs.
- h. The program preparation and subsequent update should be completed to provide timely input to the Federal RPA process.

2. State Forest Resources Plans. A Statewide forest resources plan is intended to be a program plan, not a land allocation plan. Where state land use, economic development or environmental plans exists, the SFRP should contribute to those plans. Budgets and programming based on the SFRP should contribute to those plans and render them more effective and supportive. Figure 1 depicts relationships between the SFRP, annual Program/Budget and Project Plans. Some States may have a level of Regional Planning between the annual program/budget.

If planning is to be effective, flexibility is necessary. The specific purpose, content, and format of these plans are determined by each State Forester to meet their management needs. While it is important for plans or programs to be no more specific than necessary to accomplish their intended purpose, the plans must be guided by well defined goals and accepted objectives.

3. Some of the purposes of a SFRP are:
 - a. Document management goals and objectives and current issues, management concerns, needs, and opportunities related to forest resources.
 - b. Describe the existing management situation and basic assumptions about the future.
 - c. Describe the activities needed to meet current and future demands placed on the State's resources.
 - d. Describe the economic, social, and environmental effects of proposed activities.
 - e. Describe forest resource opportunities to meet anticipated demands among major ownership categories.
 - f. Describe cooperative programs and relationships between Federal, State, and local agencies regarding the protection, use, and management of forest and rangelands.
 - g. Provide a record of long-range decisions affecting the protection, use, and management of forest and rangelands.
 - h. Provide research emphasis based on current needs and opportunities.
4. Monitoring and Evaluating SFRP. Continuous monitoring and evaluating State Forest Resource Plans in view of the above purposes is necessary to determine; 1) how the activities are meeting goals and objectives, 2) what are the consequences, and 3) need for program adjustments. This activity should provide an accurate analysis for annual planning, programming, and budget adjustments to the planned program by the State Forester.

5. A State Forest Resources Plan is not required for State participation in any aspect of Forest Service planning, nor is one required to receive Federal funds for cooperative programs. A State Forest Resources Plan is not required to receive consolidated payments under section 9 of the Cooperative Forestry Assistance Act of 1978. However, this plan may serve as a foundation for fulfilling the requirements for consolidated payments and for the RPA process.

E. Planned Program - This is usually provided for by the State Forest Resource Plan and should be one result of the planning process selected by the State Forester.

1. The purposes of the planned program are to:
 - a. Provide a comprehensive procedure and schedule of activities and strategies for meeting goals and objectives.
 - b. Provide broad guidance for future activities which focus annual planning, programming, and budgeting functions toward meeting mandates, goals, and objectives.
 - c. Provide long-range goals and objectives, and guidance for preparation of functional programs such as Cooperative Forestry, Forest Pest Management, and Cooperative Fire Protection.
2. Some of the benefits of a planned program are:
 - a. Provides for flexibility to cope with problems.
 - b. Takes advantage of opportunities through analysis of various program alternatives, and activity strategies and the balancing of cost and benefits.
 - c. Provides the analysis and data needed to support program and budget decisions involving funding increases or decreases.
 - d. Provides the State forestry organization with an organized and documented series of decisions concerning the use, management, and protection of State forest resources.
 - e. Strengthens the States' leadership role in State forest resources planning.

- f. Allows the State forestry agency to display its program as an investment in the State and national economy and the effects on people's lives.

F. Other Program Activities

While establishing and using a State forest resources planning process and developing and maintaining a State Forest Resources Plan are the major goals of the Planning Assistance Program, other activities help meet the overall purpose of the Program and are eligible for Federal assistance to the extent funds permit. These activities include such things as:

1. Providing forest resources data to or participation in other planning affecting the protection, use, and management of forest and rangelands.
2. Identification and mapping of prime timberlands.
3. Training of State forestry personnel in basic planning techniques and how to provide information and interact with other planning processes.
4. Special efforts to collect, interpret and disseminate forest resources data for planning purposes.
5. Policy analysis and evaluation.

G. Related Forest Service Assistance Programs

1. Organization and Management Assistance - Section 8(a) of the Cooperative Forestry Assistance Act of 1978 authorizes the Secretary of Agriculture to provide financial, technical and related assistance to the State Foresters (see Chapter I, B, 1.).

Most of the OMA activities are useful to the development and effective use of a State forest resources planning process.

2. Technology Implementation (Technology Transfer) - Section 8(c) of the Cooperative Forestry Act of 1978 authorizes the Secretary of Agriculture to work with and make funds available to State Foresters and others to ensure new technology is introduced; new information is integrated into existing technology; and forest resources research findings are promptly made available to State forestry personnel.

New technology in natural resources planning is being developed at a rapid pace. Old problems and inefficiencies can be avoided in developing State forest resources planning processes by applying this technology (see Chapter I, B, 3.).

3. Forest Resources Inventory and Evaluation. The Forest Service Forest and Range Experiment Station conduct periodic field surveys of forest resources for all ownerships and land uses that provide information about the extent, characteristics, and condition of forested land forest land productivity and ownership; and kinds of forest products these forested lands contain such as; timber volume, wildlife habitat, and forage production potential.

Surveys are conducted at approximately 10-year intervals. States may cooperate with Resource Evaluation Work Units to update or supplement survey data at more frequent intervals when necessary for planning purposes. Work Units are usually able to provide more information than is published in their State Resource Reports. These Units can also assist in gathering and analyzing data for monitoring and evaluating the effects of long range program direction found in State Forest Resources Plans.

H. Relationship of State Forest Resources Planning to Other State Planning

State forest resources planning and resulting State Forest Resources Plans should address all aspects of all forest resources. Where possible data prepared for programs such as State 208 Water Quality Plans, State Comprehensive Outdoor Recreation Plans (SCORP), State soil and water plans, and State wildlife management plans, should be utilized by the SFRP. These related plans, as well as other Statewide plans such as economic, human resources, Coastal Zone Management, transportation and education plans, may be useful to forest resource planning.

These Statewide and local planning efforts may also have significant impacts on forestry programs. State forest resources planning can provide a part of the information base for plans of others.

Chapter II - Planning Process

A. General

The six major planning process steps illustrated in Figure 2 are applicable to all forest resources planning efforts. While specific planning tasks in each major step are tailored to meet specific planning needs, the major steps remain unchanged. The steps are flexible and can be staggered or developed concurrently by team members.

1. Preplanning - This step involves preparation of a plan to plan. The success or failure of the planning effort may depend on the level of understanding and commitment to the concepts and procedures described in the preplanning concept document.
2. Issue Identification - Planning is most effective when it is done to solve specific problems. If the problem cannot be defined, it is unlikely any formal or informal process will reach a practical conclusion.
3. Issue Strategies - For every problem or issue, there are usually many courses of action that could be pursued to resolve them.
4. Alternatives - Once strategies for resolving issues are completed, it is usually helpful to develop various combinations of these strategies to determine which mix best resolves all the issues or meets some predetermined criteria.
5. Final Program - After the alternatives are evaluated, a final program is selected.
6. Implementation and Monitoring - A plan has no value unless it can be implemented and its effects monitored. Monitoring must be done to determine if a plan is achieving its desired results and to develop recommended changes in the plan.

B. Specific Task Outline

The Specific Task Outline illustrated in Figure 3 is one of several ways to approach the interworkings of the planning process. Modifications are encouraged to meet specific planning needs and conditions. (See D of this Chapter for Modifications.) To make full use of the outline, it is necessary to understand the following:

STATEWIDE FOREST RESOURCES PLANNING PROCESS

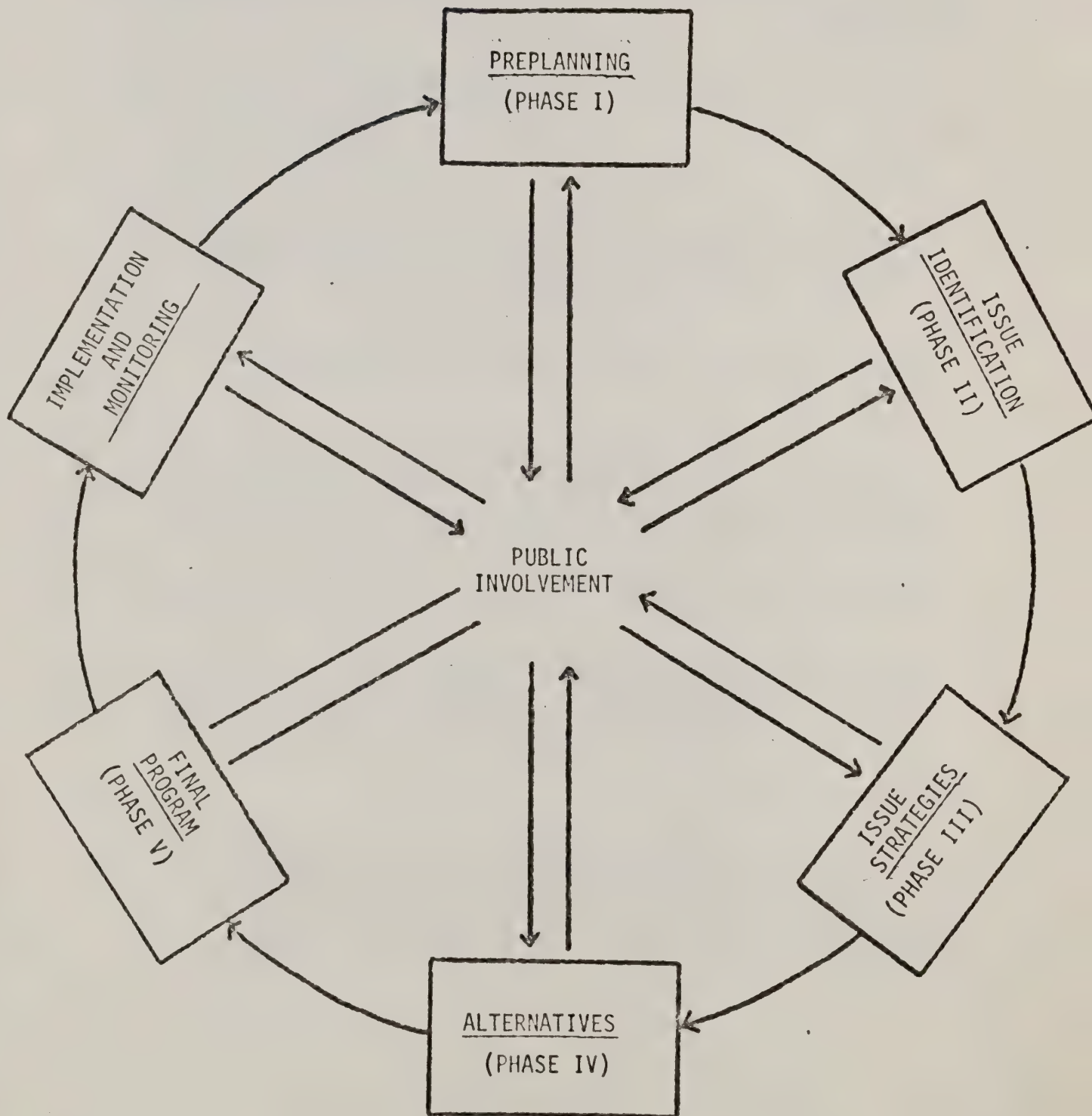
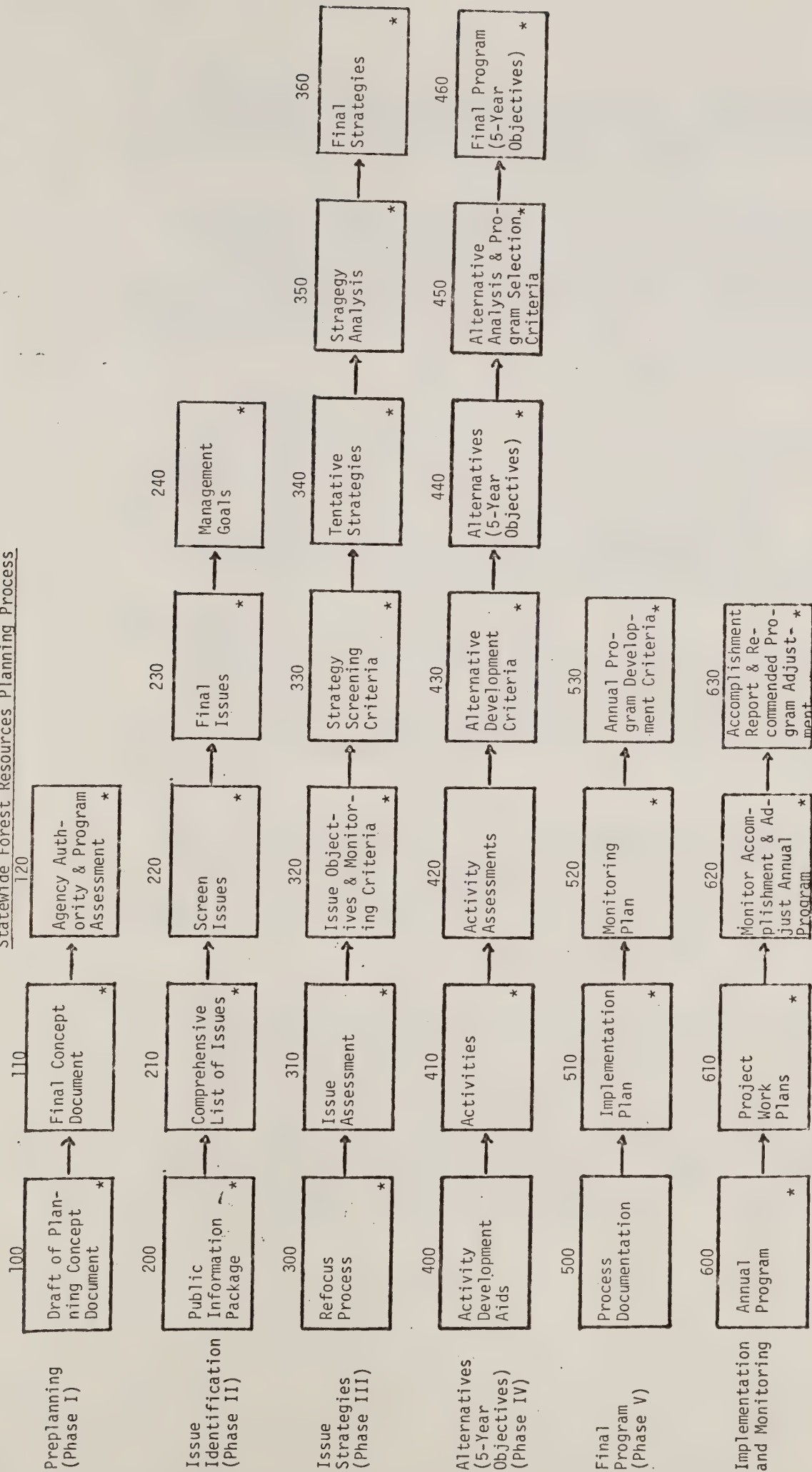


Figure 2

Statewide Forest Resources Planning Process



*Decisionmaker Participation or Sign-off Needed.

Figure 3

1. Public Involvement - The outline does not include any public involvement tasks. They must be developed by each state to meet specific needs. A carefully developed Public Involvement Plan should be the tool to do this job.
2. Agency Authority and Program Assessment - Statewide Forest Resources Planning is done, for the most part, to determine how management activities should be modified to respond to current issues. Rarely are new laws needed to resolve issues. Change cannot be prescribed until the present situation is described and thoroughly understood. This step is crucial to the planning process. (See Task 120.)
3. Data Base - The data base (assessment) for preparing the Statewide Forest Resources Plan is developed during the process to meet specific needs. Developing and maintaining a data base is a continuous effort, not a single task in the planning process. The data base normally will expand as new information is added. Data collection usually will not be a first effort in planning and most efforts to assemble needed information will concentrate initially on existing data sources.
4. Alternatives - The Specific Task Outline provides for development of alternatives. However, alternatives should be developed only where needed to help the decisionmaker choose a course of action. Where choices are obvious and the reasons for choice are not highly controversial, a formal alternative analysis may not be necessary. Simply documenting the decision may suffice.
5. Implementation and Monitoring - The process provides for integrating the final product into the program/budget process. However, it does not spell out how this should be done nor does it say specifically how the final program combines issue driven changes with ongoing noncontroversial programs. (See Chapter VII - Implementation and Monitoring.)

This section of the Guide has been prepared as a working tool for the planner. Each phase of the process has a description and a list of tasks to be performed. The specific tasks have been individually described and numbered in intervals of ten, with each phase being a progressive 100's series. This will permit the user to replace or add new tasks. For example, if Task 420 is not described properly, it should be removed and a new description inserted. If a new task is necessary between Tasks 420 and 430, a task description numbered 421 can be inserted between 420 and 430. Blank sample forms are included in the Appendix.

Since this Guide is to be kept in a loose-leaf binder, working papers, instructions and examples for each task should be kept directly behind each task description.

Exhibits 1, 2 and 3 illustrate how a program might be developed for one issue using the planning process. Because of the complexity of developing a theoretical current program, no attempt has been made to show how the current and issue programs would be integrated.

EXHIBIT 1

ISSUE PACKAGE
(CONDENSED SAMPLE)

ISSUE #3: (Task 230) Lumber demand is not being met.

GOAL: (Task 240) Meet lumber demand

ISSUE ASSESSMENT: (Task 310)

A. Present output is 200 million board feet/year

- State Forest	-	0
- Nonindustrial Private	-	115 MMBF
- Federal	-	85 MMBF

B. Present demand is 250 million board feet/year

C. Present mills are operating at capacity

D. Estimated present allowable cut from all forested lands is 260 million board feet/year

- State Forest (est.)	-	15 MMBF
- Nonindustrial Private (est).	-	135 MMBF
- Federal	-	110 MMBF

E. Projected 1985 demand is 285 million board feet/year

F. Projected 2000 demand is 300 million board feet/year

OBJECTIVE: (Task 320) Increase annual lumber output to:

250 MMBF by 1985
300 MMBF by 2000

MONITORING CRITERIA: (Task 320) Acceptable output range is + or - 5 percent.

LONG RANGE			5 YEARS		OUTPUTS	
ISSUE (Task 230)	Strategies (Task 360)	Activities (Task 410)	Final Program(Task 460) 5-Year Objectives	(Task 450 and 460) 1980-1985	Out Years	
Lumber demand not being met.	Increase cut on state lands, not to exceed allowable cut.	Change statute to permit cutting.	-Change statute to permit cutting.			
GOAL (Task 240) Meet demand.		Determine allowable cut.	-Determine allowable cut.			
ASSESSMENT (Task 310)		Prepare, sell and harvest timber	-Increase annual harvest 12 MMBF.	12 MM/Yr.	12 MM/Yr.	
A. Present output is 200 MMBF/yr. -State Forest = 0 -Private = 115 MMBF -Federal = 85 MMBF						
B. Present demand is 250 MMBF/yr.	Increase cut on non-industrial private lands, not to exceed allowable cut.	State increase forestry assistance to landowners.	-Increase assistance by 25%	10 MM/Yr.	15 MM/Yr.	
C. Present mills operating at capacity		Determine allowable cut.	-Determine allowable cut.			
D. Estimated present allowable cut from all forested lands is 260 MMBF.	Increase cut on federal lands, not to exceed allowable cut.	Generate landowner awareness of benefits associated with timber harvest. Secure agreement by FS to increase cut.	-Develop and implement three new programs, -Enter into cooperative agreement with ES, -Secure agreement.	5 MM/Yr.	5 MM/Yr.	
-State Forest (est.) = 15 MMBF -Private (est.) = 135 MMBF -Federal = 110 MMBF		FS prepare and sell additional timber. Harvest timber.	-Increase annual prep. and sale by 15 MMBF. -Increase annual harvest by 13 MMBF.	13 MM/Yr.	15 MM/Yr.	
E. Projected 1990 demand is 285 MMBF/yr.	Increase mill capacities.	Seek cooperation of industrial development commission to attract new industry. Improve efficiency and capacity of existing mills.	-Fully inform I.D.C. and help develop and implement action plan. -Provide technical assistance to 85% of mill owners.	10 MM/Yr.	30 MM/Yr.	
F. Projected 2000 demand is 300 MMBF/yr.	Increase reforestation.	Provide incentives for reforesting private lands. Increase number of acres reforested on state lands.	-Develop and implement two new incentive programs. -Reduce reforestation backlog by 45%.		10 MM/Yr.	
OBJECTIVES (Task 320)		Provide technical assistance to private landowners. Increase direct control on state lands.	-Develop and implement technical assistance program. -Increase direct control on 25% more acres.		8 MM/Yr.	
Increase annual lumber output to: 250 MMBF by 1985 300 MMBF by 2000	Decrease insect and disease growth loss.				2 MM/Yr.	
MONITORING CRITERIA (Task 320)					5 MM/Yr.	
Acceptable output range is + or - 5%.						
			TOTAL	50 MM/Yr.	87 MM/Yr.	

C. Planning Phases and Task Descriptions

ISSUE #3 (Task 230) Lumber demand not being met.	Final Program (Task 460) 5-Year Objectives	5-YEAR ANNUAL PROGRAM (TASK 510) (OUTPUT MMBF)									
		1981		1982		1983		1984		1985	
		Objective	Output	Objective	Output	Objective	Output	Objective	Output	Objective	Output
STATE LANDS STRATEGY	-Change statue to permit cutting.	Complete	0		0		0		0		0
	-Determine allowable cut.			Complete	0		0		0		0
	-Increase annual harvest 12 MMBF						5		9	Complete	12
PRIVATE LANDS STRATEGY	-Increase assistance by 25%.			5%	0	15%	2	20%	6	Complete 25%	10
	-Determine allowable cut					Complete	0		0		0
	-Develop and implement three new programs	1	0	1	0	Complete	1		2		3
FEDERAL LANDS STRATEGY	-Enter into cooperative agreement with ES.					Complete	1		1		2
	-Secure agreement.	Complete	0		0		0		0		0
	-Increase annual prep. and sale by 15 MMBF.					8	0	12	0	Complete 15	0
MILL CAPACITY STRATEGY	-Increase annual harvest by 13 MMBF								9	Complete	13
	-Fully inform I.D.C. and help develop and implement action plan.	Inform	0	Develop	0	Complete Implement	0		0		0
	-Provide technical assistance to 85% of mill owners.	65%	0	75%	5	Complete 85%	7		9		10
REFORESTATION STRATEGY	-Develop and implement two new incentive programs.			1	0	Complete 1	0		0		0
	-Reduce reforestation backlog by 45%			10%	0	20%	0	30%	0	Complete 45%	0
	-Develop and implement technical assistance program.	Develop	0	Complete Implement	0		0		0		0
I & DC STRATEGY	-Increase direct control on 25% more acres.					10%	0	15%	0	Complete 25%	0
	CURRENT PROGRAM OUTPUT *		200		200		200		200		200
	TOTAL OUTPUT		200		205		216		236		250

*As a result of actions taken on this issue or others, the current program output for this issue may change and there will be a need to adjust issue programs to meet overall objectives.

PLANNING PHASE: PREPLANNING (Phase I)

Description: Develop a course of action to guide the planning process.

TASKS

- 100 - Draft of Planning Concept Document
- 110 - Final Planning Concept Document
- 120 - Agency Authority and Role Assessment

Date: 1/80
Supersedes: None

PLANNING PHASE: Pre-Planning (Phase 1)

TASK: 100 - Draft of Planning Concept Document

Description: Develop a draft document that describes the work
to be done and the means to do it.

Product: Review Draft

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: The project proposal should include, but not limited to, the following:

1. Purpose of the Plan - State the purpose for establishing a planning process and preparing a Long Range Statewide Forest Resources Plan/Program.

2. Scope of the Plan - The physical scope of the plan should be all the forested lands within the state. Ideally, the planning process should cover all the resources and uses associated with these lands. Because of organizational and political considerations however, the scope of the planning effort may have to be reduced to include only those resources and programs under the jurisdiction of the planning agency. It is important at the outset to determine just how broad the planning effort will be.

3. Expected Results of the Planning Effort - Everyone involved in the planning process should have a clear understanding of what the expected results will be.

4. Long Range Strategy for Implementation - Spell out how the programs developed as a result of the planning process will be integrated into both the Federal and state program and budgeting process. Spell out the process to gain the necessary public and political support for implementation. This is accomplished by developing a well thought out public involvement plan as an integral part of the planning process.

(Continued)

Date: 1/80
Supersedes: None

PLANNING PHASE: Pre-Planning (Phase I)

TASK: 100 - Draft of Planning Concept Document (Continued)

Description: _____

Product: _____

Public Involvement Task: _____

Planned Completion Date: _____

Considerations:

5. Planning Objectives - Planning objectives set broad constraints to the planning process. Any course of action considered must fall within these constraints.

6. Coordination With Other Planning Process - Many other planning efforts within the state have focused on resources which are partially or entirely found within forested lands. The forest resources planning process should be coordinated with state recreation plans, state wildlife and fish plans, coastal zone management plans and statewide water quality plans.

7. Tentative Work Plan - To complete the planning process in an efficient and timely manner, a work plan should be developed which considers organization of the planning team, required budget, and proposed work schedule.

8. Planning Process - The description of the planning process should be fairly specific for the first two or three phases. This will enable the planner and decisionmaker(s) to understand the complexity and time requirements for the near future. The later phases can be general. There will be opportunities to refine them as the initial phases are completed.

(Continued)

Date: 1/80
Supercedes: None

PLANNING PHASE: Pre-Planning (Phase I)

TASK: 100 - Draft of Planning Concept Document (Continued)

Description: _____

Product: _____

Public Involvement Task: _____

Planned Completion Date: _____

Considerations:

9. Information Needs and Management - Planning is an organized activity requiring substantial amounts of information. The various types of information required to support the planning process must be identified, assembled and filed in such a way that they will be readily retrievable when needed. (See Chapter IV of this Guide.) The following files should be established during the pre-planning phase:

a. File on information needs and sources - Consider this a master file on files. Descriptions of all filing and indexing procedures should be included in this file. As new needs for information arise, the needs should be documented in this file and potential sources of information noted. As soon as possible, appropriate acquisition, storage, retrieval, and analysis systems should be generated to provide the needed information.

b. File on persons/organizations involved in planning process This file contains entries for each person, group, or organization that is, wants to, or should be involved in the planning process. Entries should include contact information, advocacy role, frequency of contacts, etc.

c. File on committees - Much of the planning process necessarily involves committees. This file documents the charge, composition, meeting schedule, and reporting status of each such committee. Subfiles are created as necessary to document the activities of these committees.

(Continued)

Date: 1/80
Supersedes: None

PLANNING PHASE: Pre-Planning (Phase I)

TASK: 100 - Draft of Planning Concept Document (Continued)

Description: _____

Product: _____

Public Involvement Task: _____

Planned Completion Date: _____

Considerations:

d. Comments/concerns file - Beginning with the very next task, comments and concerns will begin to flow in relation to the planning process, social benefits to be derived from forest resources, preservation of resources, priorities, costs, impacts, and so on. These comments and concerns are the building blocks of issues, programs, and the planning process itself. They should be collected into a file along with information on source, date, context, and planning phase to which they relate. There should be frequent need to review and sort them in formulating issues, strategies, and programs. Therefore, they should be kept in either loose-leaf, card, or computer coded form. Edge-notched keysort cards may provide a convenient medium for maintaining and resorting this file.

Date: 1/80
Supersedes: None

PLANNING PHASE: Pre-Planning (Phase I)

TASK: 110 - Revise and Finalize Concept Document

Description: Consider comments and revise concept document.

Product: Final Concept Document

Public Involvement Task:

Planned Completion Date:

Considerations: It is desirable to secure executive approval of the concept document at the highest possible level in the state organization.

Date: 1/80
Supersedes: None

PLANNING PHASE: Pre-Planning (Phase I)

TASK: 120 - Agency Authority and Role Assessment

Description: Complete a comprehensive assessment of the legal authorities, missions, and programs for all agencies involved in the planning process.

Product: Agency Authority and Role Assessment

Public Involvement Task:

Planned Completion Date:

Considerations: Before programs can be refocused to resolve issues, their legal basis and purpose must be understood and documented. It is also important to fully describe the roles assigned to all involved agencies regarding these programs. They are either advisory, regulatory or a combination of the two. Information in this task is vital to the formulation of strategies to resolve issues.

Date: 1/80
Supercedes: None

PLANNING PHASE: ISSUE IDENTIFICATION (Phase II)

Description: Identify issues and concerns related to the management and use of forest resources.

TASKS

- 200 ⤵ Public Information Package
- 210 ⤵ Comprehensive List of Issues
- 220 ⤵ Screen Issues
- 230 ⤵ Final Issues
- 240 ⤵ Management Goals

Date: 1/80
Supercedes: None

PLANNING PHASE: Issue Identification (Phase II)

TASK: 200 - Public Information Package

Description: Provide publics identified in Public Involvement

Plan with information they need to participate in the planning
process.

Product: Public Information Package

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: This package should include, but not limited to, the following:

1. Purpose of the Planning Effort - Same as Task 100, 1.
2. Description of State and its Forest Resources - This should be a succinct overview which covers physical, social and economic characteristics of the state and its forest resources.
3. Agency Role and Program Descriptions - This should include legal authorities and constraints, agency missions, annual resource output statistics, 3-year average budget by programs, management goals*, and other information that will help the public understand the agency. (See Task 120.)
4. Basic Assumptions - This should be the perception of what the future supply and demand situation will be during the planning horizon.
5. Description of Planning Process and Role of Public - The public must know where the process is going and where they will have an opportunity to become involved.

*If management goals do not exist or are not adequate, a separate process must be followed to develop them, including public involvement. (See Task 240.)

Date: 1/80
Supercedes: None

PLANNING PHASE: Issue Identification (Phase II)

TASK: 210 - Comprehensive List of Issues

Description: Develop a list of issues from all segments of
the public.

Product: Initial List of Issues

Public Involvement Task:

Planned Completion Date:

Considerations: This should be a complete list of issues from all informal and external sources. All publics submitting issues should have access to the public information package developed in Task 200.

Information Management - An issue driven planning process is assumed throughout this Guide. The need to document and track the evolution of issues and programs is repeatedly stressed. This need for tracking extends through repeated cycles of planning.

Adequate documentation and tracking of issues will necessitate a formal set of files and subfiles in which issues, strategies, and programs are coordinated and cross-referenced.

Date: 1/80
Supercedes: None

PLANNING PHASE: Issue Identification (Phase II)

TASK: 220 - Screen Issues

Description: Revise the list of issues so they include only those which are reasonable and fall within the scope of the planning process.

Product: Revised Issue List

Public Involvement Task:

Planned Completion Date:

Considerations: The reasons for rejecting an issue should be documented so the persons who originally submitted them will know why.

The scope of the plan/process is usually the major criteria used to screen issues. An issue may be too broad, such as multi-state, or too narrow, such as county or local in nature.

Date: 1/80
Supercedes: None

PLANNING PHASE: Issue Identification (Phase II)

TASK: 230 - Final Issues

Description: Analyze the refined issue list and aggregate
the issues into major issue headings.

Product: Final Issues*

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: Most lists of issues are a combination of major issues and symptoms of these issues. To develop a workable set of issues, it is necessary to aggregate the initial list into common areas of concern. Once this is done, the major issue must be found. It may be one of the original issues or some modification of one of them. In other cases, the major issue may not be stated and must be developed. After the major issues are found, the remaining issues can be used as part of the issue description.

*New issues may arise and, in one sense, should never be considered "final."

Date: 1/80
Supercedes: None

PLANNING PHASE: Issue Identification (Phase II)

TASK: 240 - Management Goals

Description: Based on issues, develop or refine existing
management goals.

Product: Management Goals

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: Management goals should describe the condition to be achieved which will resolve the issues. This task should be expanded where necessary to involve the public. If a firm set of goals existed prior to the planning process (see Task 200), this task should be a refinement process.

There should be relevant management goals for all of the major issues identified in Task 230. Other established management goals, not related to an issue, should be reexamined to determine if they still are viable and if other management "concerns" should be added to the list of issues. Issues, management concerns and goals may all be tracked in developing strategies in Phase III.

The determining factors on whether to focus on issues or management goals vary for each State plan. If the issues are addressed, the strategies will tend to relate to real needs and agency visibility and credibility will likely be improved. But there is danger in having too many issues. The number and variety may be too great to handle effectively. The exposure and debate of issues may polarize the public. Issues tend to be short-range and shallow, difficult to measure progress, and may overlook important, but non controversial, programs or activities.

If the management goals are not based on issues, the public may not be interested in them and therefore will not support them. There is danger that the agency may appear bureaucratic, arrogant and self-serving.

Date: 8/82
Supersedes: 1/80

PLANNING PHASE: Issue Identification (Phase II)

TASK: 240 - Management Goals (continued)

Description: Based on issues, develop or refine existing
management goals.

Product: Management Goals

Public Involvement Task: _____

Planned Completion Date: _____

Considerations:

If the goals are tied directly to the issues, and the public can recognize the connection, the total program tends to be relevant and complete - addressing all resource activities. Measuring progress and demonstrating cost effectiveness will be less difficult if the activities are identified with a recognized management goal. (It should be recognized that some strategies may serve more than one issue or goal, resulting in a synergistic effect.)

Whether the process is goal orientated or issue driven, goals and issues can not be left hanging. They must be dealt with or resolved to the satisfaction of those who expressed a concern or interest.

Date: 8/82
Supersedes: None

PLANNING PHASE: ISSUE STRATEGIES (Phase III)

Description: Develop strategies to resolve issues,

TASKS

- 300 - Re-focus Process
- 310 - Issue Assessment
- 320 - Issue Objectives and Monitoring Criteria
- 330 - Issue Strategy Screening Criteria
- 340 - Tentative Strategies
- 350 - Strategy Analysis
- 360 - Final Strategies

Date: 1/80
Supersedes: None

PLANNING PHASE: Issue Strategies (Phase III)

TASK: 300 - Re-focus Process

Description: Re-examine the Final Concept Document, Determine if
process will focus on issues or management goals or a combination
of both. and Make deletions, additions or modifications where necessary.

Product: Updated Concept Document and Direction Memorandum

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: The issues and management goals should be examined and reconciled; the Concept Document updated to reflect commitment to management goals as they relate to relevant issues; and direction made clear by memorandum or other signed directive to all of the participants and interested parties.

Date: 8/82
Supersedes: 1/80

PLANNING PHASE: Issue Strategies (Phase III)

TASK: 310 - Issue Assessment

Description: Complete a detailed description of each issue.

Product: Issue Assessments

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: This issue assessment should fully describe each issue and provide enough information to understand why the issue exists. Some basic assumptions should be made concerning the future. It should also provide sufficient background data to develop reasonable strategies for resolving the issues.

Each assessment should clearly, and fully, describe existing programs affecting each issue.

Information Management - Planners can neither rank issues adequately nor formulate effective strategies for resolving issues unless information is available on the physical/biological characteristics of the forests in question.

Much of the inventory data needed for assessing issues and formulating strategies may already exist. Such existing information must be assembled and may require further analysis. In the absence of current information it will be necessary to organize survey projects and analyze the resulting data.

There is a considerable range in sophistication (and cost) of such data bases. The most simple approach involves manual tabulation using calculators and summarization into a printed report. More sophisticated approaches involve computer analysis, storage, and retrieval by geographic coordinates and other keys specified through query languages and report generators.

(Continued)

Date: 1/80
Supersedes: None

PLANNING PHASE: Issue Strategies (Phase III)

TASK: 310 - Issue Assessment (Continued)

Description: _____

Product: _____

Public Involvement Task: _____

Planned Completion Date: _____

Considerations:

Social-Economic - The motivation for forest resource management comes from people, not from forests. Therefore, the ultimate justification for and judgment of programs also lies with the human populace. It is impossible to attempt formulation of programs without adequate knowledge of the human populations to be impacted by the programs.

Contents of the socio-economic data base will come largely from reports published by the various levels of government. On occasion, however, it may be necessary to generate new data by questionnaires, interviews, etc.

Alternative forms for this data base parallel those for the forest resource data base. However, the data tend to be more qualitative so statistical analysis procedures vary accordingly.

Date: 1/80
Supersedes: None

PLANNING PHASE: Issue Strategies (Phase III)

TASK: 320 - Issue Objectives and Monitoring Criteria

Description: Develop broad objectives for each issue and
develop the criteria to be used for monitoring accomplishment
of the issue.

Product: Issue Objectives and Monitoring Criteria

Public Involvement Task:

Planned Completion Date:

Considerations: Issue objectives should specify how much of the goal will be accomplished in the plan period. The monitoring criteria should set the range of output or effects (+ or -) that will be acceptable. If these limits are exceeded, the program for an issue (Task 460) should be adjusted to correct the problem. These criteria may be adjusted after the planning process has progressed through Task 460 to ensure the criteria are realistic.

Information Management - A subfile to issues files may be desirable for the issue objectives and monitoring criteria.

Date: 1/80
Supersedes: None

PLANNING PHASE: Issue Strategies (Phase III)

TASK: 330 - Issue Strategy Screening Criteria

Description: Develop a set of criteria to be used for
determining which strategies will be fully analyzed.

Product: Issue Strategy Screening Criteria

Public Involvement Task:

Planned Completion Date:

Considerations: These criteria will determine which strategies will be fully analyzed. It is important these criteria be as objective as possible. Objectivity helps avoid conflict over whether or not a strategy should have been eliminated.

Strategies are usually a modification, increase or decrease, of programs authorized by existing law. Getting new legal authorities is usually a time consuming process. The screening criteria should not rule out strategies requiring new authorities, but should make them desirable only when there are no alternatives to pursue.

The responsible decisionmaker should approve these criteria before proceeding to the next task.

Information Management - A subfile to issues should be established for issue strategies.

Date: 1/80
Supersedes: None

PLANNING PHASE: Issue Strategies (Phase III)

TASK: 340 - Tentative Strategies

Description: Develop a set of strategies to be fully analyzed.

Product: Tentative Strategies

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: As strategies are proposed they should be evaluated using the screening criteria developed in Task 330. The initial list should come from all segments of the public. If strategies are rejected for reasons other than those listed in the screening criteria, the reasons should be fully documented.

Issue strategies may be direct actions, those under the direct control of the agency, or indirect action, requiring action by someone over whom you have no direct control.

Date: 1/80
Supercedes: None

PLANNING PHASE: Issue Strategies (Phase III)

TASK: 350 - Strategy Analysis

Description: Fully describe the effects, outputs, and
implementation problems for each tentative strategy.

Product: Strategy Analysis

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: This task will help further describe the tentative strategies and screen out those not practical or feasible. The screening criteria developed in Task 330 may be refined and applied again in this Task.

This task also provides information for the development of activities in Task 410.

Date: 1/80
Supercedes: None

PLANNING PHASE: Issue Strategies (Phase III)

TASK: 340 - Tentative Strategies

Description: Develop a set of strategies to be fully analyzed.

Product: Tentative Strategies

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: As strategies are proposed they should be evaluated using the screening criteria developed in Task 330. The initial list should come from all segments of the public. If strategies are rejected for reasons other than those listed in the screening criteria, the reasons should be fully documented.

Issue strategies may be direct actions, those under the direct control of the agency, or indirect action, requiring action by someone over whom you have no direct control.

Date: 1/80
Supersedes: None

PLANNING PHASE: Issue Strategies (Phase III)

TASK: 350 - Strategy Analysis

Description: Fully describe the effects, outputs, and
implementation problems for each tentative strategy.

Product: Strategy Analysis

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: This task will help further describe the tentative strategies and screen out those not practical or feasible. The screening criteria developed in Task 330 may be refined and applied again in this Task.

This task also provides information for the development of activities in Task 410.

Date: 1/80
Supersedes: None

PLANNING PHASE: Issue Strategies (Phase III)

TASK: 360 - Select Final Strategies

Description: Review the strategy analysis and select those
strategies that will be pursued throughout the remainder of
the planning process,

Product: Final Strategies

Public Involvement Task:

Planned Completion Date:

Considerations: This is a critical point in the planning process.
The final set of strategies will be the basis for the ultimate
actions taken to resolve issues.

The responsible decisionmaker should approve these strategies
before proceeding to the next task.

Date: 1/80
Supersedes: None

PLANNING PHASE: ALTERNATIVES (5-YEAR OBJECTIVES) (Phase IV)

Description: Develop and analyze alternatives consisting of 5-year objectives and select final program.

TASKS

- 400 ↖ Activity Development Aids
- 410 ↖ Activities
- 420 ↖ Activity Assessments
- 430 ↖ Alternative Development Criteria
- 440 ↖ Alternatives (5-Year Objectives)
- 450 ↖ Alternative Analysis and Program Selection Criteria
- 460 ↖ Final Program (5-Year Objectives)

Date: 1/80
Supercedes: None

PLANNING PHASE: Alternatives (5-Year Objectives) (Phase IV)

TASK: 400 ~ Activity Development Aids

Description: Develop aids for developing a list of activities
for each strategy.

Product: Activity Development Aids

Public Involvement Task:

Planned Completion Date:

Considerations: These aids are usually a set of questions that can be asked about each issue strategy to stimulate the development of activities for the implementation of a strategy. A set of questions will usually help develop a pattern of activities that will help in evaluating the relative merit of each strategy.

Information Management ~ A subfile to strategies should be established for activities.

Date: 1/80
Supersedes: None

PLANNING PHASE: Alternatives (5-Year Objectives) (Phase IV)

TASK: 410 - Activities

Description: Develop a set of activities necessary to implement
each strategy.

Product: Activities

Public Involvement Task:

Planned Completion Date:

Considerations: The strategy analysis developed in Task 340 and activity development aids from Task 400 should be used in this task.

Date: 1/80
Supercedes: None

PLANNING PHASE: Alternatives (5-Year Objectives) (Phase IV)

TASK: 420 Activity Assessments

Description: Develop information about the activities that
would be useful in determining priorities and sequence of activities
to be pursued during the next 5 years.

Product: Activity Assessment Document

Public Involvement Task:

Planned Completion Date:

Considerations:

1. Determine the sequence of activities where activities are interdependent.
2. Determine if there are existing authorities and programs to carry out each activity. If there are none, determine what new authorities and programs would be needed.
3. Determine who will be responsible for doing each activity.
4. In a general way, estimate the effects of carrying out an activity. What problems will be encountered and what kind of results might be expected, particularly as they relate to the issue objectives (Task 320).
5. Determine relative efficiency of carrying out each activity or a series of activities. In a general way, are you going to get a reasonable output for the cost of doing an activity?
6. It may be desirable to determine priorities.
7. A conflict matrix may be needed to determine which activities conflict and to what degree they conflict.

Date: 1/80
Supercedes: None

PLANNING PHASE: Alternatives (5-Year Objectives) (Phase IV)

TASK: 430 - Alternative Development Ceiteria

Description: Develop a set of criteria for developing alternative sets of 5-year objectives.

Product: Alternative Development Ceiteria

Public Involvement Task:

Planned Completion Date:

Considerations: Alternatives should be developed only when needed to help the decisionmaker chose a course of action. Planners and decisionmakers have better things to do than develop and evaluate "strawmen." Alternatives can be many and complicated or few and simple, depending on the criteria used to develop them and the needs of the decisionmakers. Where choices are obvious and the reasons are not highly controversial, a formal alternative analysis will not serve any purpose. Simply documenting the reasons for the decision will suffice. Where the choices are not obvious or the reasons for choice are highly controversial, the alternative analysis is useful. Criteria for decision becomes extremely important in these cases.

Criteria for alternatives can specify the breadth and scope of the alternative. It might be a strategy by strategy analysis of which activities to pursue or it might be an analysis of alternative mixes of activities for resolving all issues which could be considered alternative programs.

Criteria also can specify sideboards for developing alternatives such as budget ranges, desired economic, social, environmental, and political effects, and the weight given to such things as public input. Criteria developed at this stage of the planning process can only be a first cut. As alternatives are developed in Task 440, it probably will be necessary to adjust the criteria to permit consideration of a broader set of alternatives or a smaller set. As the criteria are applied, they probably will need some fine tuning.

Date: 1/80
Supersedes: None

PLANNING PHASE: Alternatives (5-Year Objectives) (Phase IV)

TASK: 440 - Alternatives (5-Year Objectives)

Description: Develop alternative combinations of 5-year
objectives.

Product: Alternatives

Public Involvement Task: _____

Planned Completion Date: _____

Consideration: It is rare when all choices made to develop a final program are obvious and the reasons are not controversial. If this is not the case, then some formal alternatives should be developed for analysis. The complexity of the alternatives will depend on the criteria established in Task 430.

Alternatives provide options for resolving issues or attaining goals. There are several ways to build alternatives from different mixes of management activities. They include: (1) Principles and Standards themes. Activities are sorted into management themes such as the Economic Development, Environmental Quality, present management, and usually some mix of all three. The theme approach lends consistency to each set of activities and avoids lumping activities that are mutually exclusive. (2) Futures Approach - Various future scenarios are modeled, assumptions made, and activities are classified by the "future" they best support. (3) Budget Levels - Activities are prioritized, costed out and sorted by various budget levels (+25%, present budgets, -25%). (4) Principles and Standards plus Budget Levels - This method employs the thinking of both approaches. First sort by themes and then apply priority and budget constraints to the activities.

If you choose to simply select the strategy (and sets of activities) to achieve a goal or resolve an issue without formulating alternatives, make sure the strategies and activities selected are not mutually exclusive or working against each other.

Date: 8/82
Supersedes: 1/80

PLANNING PHASE: Alternatives (5-Year Objectives) (Phase IV)

TASK: 440 - Alternatives (5-Year Objectives)

Description: Develop alternative combinations of 5-Year
objectives. (continued)

Product: Alternatives

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: To facilitate analysis and to make a clear transition from the final program to the annual program, it is useful to develop the alternatives as a set of 5-year objectives based on the activities developed in Task 410. The activity assessments of Task 420 should help in this task.

Some screening of alternatives take place in this task. As the alternatives are developed, it may become obvious some are inappropriate or unacceptable for various reasons. These reasons should be added to the alternative development criteria. It may also become obvious certain development criteria are ruling out viable alternative actions and should be changed or eliminated.

Alternatives may be changed or dropped altogether as the effects of implementation are developed and analyzed in Task 450.

Information Management - It may be desirable to develop a file on alternatives.

Date: 8/82
Supercedes: None

PLANNING PHASE: Alternatives (5-Year Objectives) (Phase IV)

TASK: 450 - Alternative Analysis and Program Selection Criteria

Description: Analyze all alternatives to determine their out-
puts; economic, social, environmental and political effects,
and implementation needs and problems.

Product: Alternative Analysis and Program Selection Criteria

Public Involvement Task:

Planned Completion Date:

Considerations: "Analysis" as used in this task refers to the examination of each alternative, as opposed to "evaluation" which refers to the comparison of one alternative to another.

This task should provide all the information needed for evaluating the alternatives in Task 460.

As the alternatives are being analyzed, the criteria for evaluating or comparing alternatives should be developed. This will provide the basis for choosing among alternatives. There should not be an over-kill in these criteria. In most cases there are minimum comparisons that can be made. However, there are usually only a small number that show major differences. The decisionmaker cannot rely on the evaluations to make his decision for him. At some point, he has to say, "I think this is the way to go," based on the evaluation and his intuition.

Date: 1/80
Supercedes: None

PLANNING PHASE: Alternatives (5-Year Objectives) (Phase IV)

TASK: 460 - Final Program (5-Year Objectives)

Description: Evaluate the alternatives and select a final
program of 5-year objectives.

Product: Final Program

Public Involvement Task:

Planned Completion Date:

Considerations: All alternatives should be evaluated based on the selection criteria developed in Task 450. As the evaluation is conducted, it may be necessary to adjust these criteria to reduce or expand the number of alternatives considered for final selection. The criteria may not narrow the choices of alternatives down to one. The final decision may have to be made on subjective judgment of the decisionmaker.

The decisionmaker should prepare a decision statement documenting his reasons for selection of the final program.

The final program should include planned outputs in units that relate to the issue objective, both for the five-year plan period and beyond.

An estimate should be made of budget and manpower needs by objectives. What programs will be used to fulfill the objective and who will be responsible should be documented. The effects of implementation should also be fully documented.

Date: 1/80
Supercedes: None

PLANNING PHASE: FINAL PROGRAM (Phase V)

Description: Complete documentation of planning process; develop an implementation plan; develop a monitoring plan and develop criteria for preparation of an annual program.

TASKS

- 500 ↪ Process Documentation
- 510 ↪ Implementation Plan
- 520 ↪ Monitoring Plan
- 530 ↪ Annual Program Development Criteria

Date: 1/80
Supersedes: None

PLANNING PHASE: Final Program (Phase V)

TASK: 500 - Process Documentation

Description: Complete the documented record of the planning
process.

Product: Process Documentation

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: The planning process is a complex series of decisions. It is extremely important the criteria used to make these decisions be documented to ease monitoring of plan implementation and future review and update. This task is only a checkpoint to clean up the documentation, not the point in the process to do the documentation. This should have been done as the various tasks in the process were completed.

Date: 1/80
Supercedes: None

PLANNING PHASE: Final Program (Phase V)

TASK: 510 - Implementation Plan

Description: Prepare a plan for implementing the final program.

Product: Implementation Plan

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: An implementation plan should spell out who, what, when and, perhaps in broad terms, where the final program will be implemented. It should include a 5-year program of annual objectives along with the outputs by objective for each annual program. The outputs should be in units related to the issue objectives and 5-year objectives.

The 5-year program of annual objectives will be reviewed and updated annually to reflect actual budget allocations and annual accomplishment. This program and the documentation of accomplishment will serve as one of the major controls in the monitoring process (Task 620).

Date: 1/80
Supercedes: None

PLANNING PHASE: Final Program (Phase V)

TASK: 520 - Monitoring Plan

Description: Prepare a plan for monitoring plan implementation
and effectiveness.

Product: Monitoring Plan

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: It is important someone or some staff group be assigned the responsibility for monitoring plan implementation. Monitoring should include, an annual comparison of what was planned vs. what was actually done; what outputs were expected vs. what was actually achieved; and what effects were expected vs. what actually happened. The monitoring plan should specify how and when and by whom this comparison will be made and how this information will affect review and update of the 5-year plan.

It is also important to determine how much deviation from the expected results will be tolerated before some corrective action will be taken. These criteria will usually not be hard and fast because current conditions and good judgment may require changes.

The monitoring plan should specify how the decisionmaker will know when things are going wrong, why they went wrong and how serious the problems are. The plan should specify what information will be given to the planner for review and update of the 5-year plan.

Both the 5-year and annual programs/plans will be monitored annually. The 5-year plan/program will be reviewed and minor revisions will be made annually. Major revisions will be made as necessary. The distinction between minor and major revisions should be spelled out in the monitoring plan.

Date: 1/80

Supersedes: None

PLANNING PHASE: Final Plan (Phase V)

TASK: 530 - Annual Program Development Criteria

Description: Develop the criteria to be used or considered
to develop the annual program.

Product: Annual Program Development Criteria

Public Involvement Task: _____

Planned Completion Date: _____

Considerations: There are many factors influencing development of annual programs that cannot be assessed until the time comes to prepare the program. The political climate will bring about different program emphasis from the Governor, Department Directors or Commissioners, and the State Forester. The current State legislature may wish to exert some unpredicated program emphasis through the budget, or other means. Budget estimates or allocations for federal programs is another factor to consider.

The criteria developed in this task should consider where these factors are likely to develop and how information from the Forest Resources Program can be used to temper them to avoid major deviation from the planned program.

How much should all this direction and outside influences affect the planned program?

Date: 1/80
Supercedes: None

PLANNING PHASE: IMPLEMENTATION AND MONITORING

Description: Implement the plan, monitor accomplishment, analyze accomplishment, and make recommendations for changing the plan.

TASKS

- 600 ↪ Annual Program
- 610 ↪ Project Work Plan
- 620 ↪ Monitor Accomplishment and Adjust Annual Program
- 630 ↪ Accomplishment Report and Recommended Program Adjustment

Date: 1/80
Supersedes: None

PLANNED PHASE: Implementation and Monitoring

TASK: 600 - Annual Program

Description: Prepare an annual program for implementing the
Forest Resources Program/Plan.

Product: Annual Program

Public Involvement Task:

Planned Completion Date:

Considerations: The 5-year annual program developed in Task 510 should be the basis for developing the annual program. It will be influenced by the considerations and criteria developed in Task 530. Actual development of the annual program and budget will follow the normal procedures prescribed in each state.

To provide continuity between the 5-year program, the annual program should consist of a series of annual objectives.

Date: 1/80
Supercedes: None

PLANNING PHASE: Implementation and Monitoring

TASK: 610 - Project Work Plans

Description: Prepare project work plans to meet the objectives
established in the annual program.

Product: Project Work Plans

Public Involvement Task:

Planned Completion Date:

Considerations: Project plans are the action documents with specific instructions on what the job is, who will do it, and where and when it will be done. It states the expected results and the budget, manpower, materials, and equipment needed to do the job.

It is important these plans be realistic and accurate because they are the basis for determining what was planned for on-the-ground implementation. They will be used to monitor actual accomplishment in Task 620.

Date: 1/80
Supersedes: None

PLANNING PHASE: Implementation and Monitoring

TASK: 620 - Monitor Accomplishment and Adjust Annual Program

Description: Monitor project accomplishment and make adjustment
as necessary to achieve desired results.

Product: Adjustment Record

Public Involvement Task:

Planned Completion Date:

Considerations: This task involves monitoring the project plans as they are carried out and making necessary adjustments to meet the objectives in the annual program.

All adjustments in project plans should be fully documented to preserve an accurate record of what actually was done. If this is not done, it will be difficult to determine if deviations from expected results were due to poor planning or failure to carry out the projects as planned.

The Monitoring Plan developed in Task 520 should guide this activity.

Date: 1/80
Supercedes: None

PLANNING PHASE: Implementation and Monitoring

TASK: 630 - Accomplishment Report and Recommended Program Adjustment

Description: Prepare an annual accomplishment report and make
recommendations for changes in the Statewide Forest Resources
Plan and the 5-year program of annual objectives.

Product: Accomplishment Report and Recommended Changes

Public Involvement Task:

Planned Completion Date:

Considerations: A comparison should be made between the expected results of the project plans and the actual results and an analysis should be made to determine the reasons for under or over achievement.

The results of this comparison and analysis should be considered using the monitoring criteria developed in Task 520 and appropriate action should be taken. Recommended adjustments in the Statewide Plan and 5-year program of annual objectives will also depend on a complete review of all the planning steps for accuracy.

Date: 1/80
Supersedes: None

D. Modifications

Depending on conditions found in each planning situation, it may be necessary to develop a planning process which is a major departure from the process found in Section B of this Chapter. As descriptions of these processes and their results become available they will be incorporated in this section of the Guide.

E. Tracking Issues Through the Process

Issues are the driving force in the planning process. All efforts are directed toward resolving these issues.

It is important for the planning process to be designed to track the issues through the process. All persons involved, both internal and external, have a need to know how their issues and concerns and their ideas for resolving them were considered.

Chapter III - Public Participation

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Chapter III - Public Participation

A. Introduction

To have a successful State Forest Resources Planning Program, resource managers and planners must appreciate the importance of public participation. Participation by various publics in the State Forest Resources Planning Process can improve the quality of decisions and gain support for proposed programs. In recent years, agencies that have not accommodated public input often have found their projects delayed or permanently blocked.

The term "public" is defined as the multiple value interests that make up our society. The public participation process involves many different "levels" of publics. These "levels" include:

1. Internal - within agency - line and field level.
2. Representatives of other agencies.
3. Elected officials.
4. Leaders of organized groups/interests.
5. "General" public not associated with a known interest.

This is not intended to suggest that every individual or interest group needs to have input into forest resources planning. It does mean that those whom resource decisions affect should be given the opportunity to be a part of a process to create broad areas of general agreement among conflicting interests.

The increasing scope of governmental programs and the subsequent growth of government agencies have forced the resource manager into the position of having to decide technical questions and to make value judgements. It is this perception by various publics that has caused conflicts among publics and resource management agencies. The Public Participation Process can assist the resource manager in alleviating and resolving these problems. The purpose of the process is to open communication among publics and the agency. The process provides the framework for publics to better understand agency goals and resource limitations while offering the agency the opportunity to consider and include values expressed by publics. Public participation does not solve every conflict between agency and public, but it allows both groups and agencies to view all alternatives so that conflict might be minimized.

This Chapter of the Planning Guide is designed to provide Forest Resources Planners with an understanding of the basics of public participation. The information is aimed at addressing the major public involvement questions resource managers and planners must answer in developing a Public Participation Plan. There are building blocks on which every public participation effort must focus to be successful. The following discussion will assist the State Forest Resources Planner to understand the How's and Why's of public participation, the phases of the process, format for Public Participation Plans, some selected public participation techniques, and a methodology for analyzing public comments.

B. What is Public Participation?

Public participation is dialogue among publics and agencies to improve the decisionmaking process. It can be:

1. Informal one to one communications among agency employees and members of the public encountered during the business day, or
2. Formal actions to increase the exchange of information among publics and agency personnel.

C. Why Public Participation?

Benefits from a Public Participation Program:

1. Provides an opportunity for public to become better informed on resource limitations, trade-offs, etc.
2. Provides the agency with the opportunity to inform publics about departmental goals and procedures, in addition to organizational, financial, and legislative limitations.
3. Through continuous public participation, changes in the publics' values can be tracked.
4. Public participation can be used to obtain needed data and alternative solutions to problems.
5. Issues can be identified early and throughout the planning process.
6. Continuous and open public participation builds agency credibility.
7. Public participation sensitizes agency staff to the publics' priorities.

D. Who is the Public?

A definition as to who or what constitutes the so called "public" is difficult to pinpoint. Rather than a single purpose public, it appears the public is made up of "multiple publics." "Multiple publics" are represented by a composite of vocal minorities. Often the vocal minority represents the national interests with the remaining publics accepting the decisions made through acquiescence, apathy, or ignorance.

E. How Do Publics Communicate?

Most publics express themselves through emotional or value-laden language. Values are the standards by which individuals or groups judge reality to be good/bad, fair/unfair, moral/immoral, etc. Some examples of values are: Free Speech, Free Enterprise, Private Property, Preservation of Nature. Values often are difficult to justify because they are accepted on faith. The lack of objectivity makes it difficult for resource professionals to set priorities and make decisions on the basis of impartial, dispassionate facts. However, the irrational, intuitive, value-laden, emotion-riddled world will not go away. Resource professionals must respond to people as they are, not as we would like them to be.

Values are expressed in three ways:

1. The descriptive words people use:

Timber Industry - overmature, decadent lumber.
Backpacker - destroying the forest.
Preservationist - forests are a religious experience.
Public Agency - respond positively to the public.
Land Developer - highest and best use of the land.

2. The sources people quote:

Individual - it says in the Bible, man should multiply and subdue the earth.
Businessman - the Wall Street Journal said a recession is imminent.
Preservationist - the Sierra Club's findings conflict with the government's study.

3. The description of the consequences of different courses of action:

Preservationist - the project will result in total destruction of the ecosystem.
Chamber of Commerce - this will mean economic chaos for the community.
Industry - this action will put us out of business.

F. When is Public Participation Needed?

Alternative plans are made up of both technical forestry components and value components. When making a decision, the resource manager often is forced to balance technical and value data. This makes the resource manager a participant in policy politics, which can be an unpleasant task, particularly for managers whose training has been in determining solutions based on technical facts.

Agency professionals are held responsible for technical decisions, but their supervisors are accountable for the political and values aspects of the decision. The public must be actively participating in every step of the planning process where political or value considerations are involved. Technical parts of the process can be left to foresters, but judgment concerning values should not be made solely by agency administrators.

The following section explains the integration of the State Forest Resources Planning Process with the Public Participation Process. Each phase of the planning process contains participation elements that need to be tailored to fit the characteristics of the particular planning phase. As a part of these phases, a task and the necessary public participation need to be established.

1. Preplanning

Task

Identify the planning products to be produced from this planning phase, the scope of involvement, the concerns of the publics, an explanation of the Public Participation Program and method to evaluate effectiveness of the Public Participation Plan.

Participation

Public participation in this phase is primarily aimed at informing agency personnel, other in-house departments, and the key leaders of various public interests.

2. Issue Identification

Task

During this phase, the major public participation task is to identify public concerns and values. Communicating information about the study or the resource base may be necessary. However, this phase primarily seeks to obtain information from the public. The public response will typically be broad, primarily communicating problems and values, because there are few specifics to which the public can respond. It is important that the public's contributions be summarized. The summary information should be provided to the public.

Participation

Participation is likely to be primarily from organized interests or individuals with a direct stake in the issue, unless the issue is quite controversial.

3. Issue Strategies

Task

The issue strategies are formulated to present alternative methods by which to solve problems and concerns determined under Issue Identification. Each issue may have several proposed strategies.

Participation

During this phase, the issues are reviewed. Citizen and Technical Committees, via workshop format can be used to list and discuss approaches to solving resource issues.

4. Alternatives

Task

The concerns and values expressed by publics in phases 2 and 3 serve as guidelines for the formulation of alternatives. For each alternative developed, an assessment should be made of social, economic, and resource impacts.

Participation

During this phase, broad concerns expressed by the public are reviewed, evaluated, and integrated into alternatives. Citizen work teams or workshop approaches are desirable, because they encourage continuity and familiarity with the resource base and other relevant data. This does, however, limit the scope of participation, and it is crucial that such groups contain the fullest possible range of values when assisting in the formulation of alternatives.

5. Review

Task

The alternatives and their impacts are communicated to the public. The public responses to the alternatives should also be communicated. This is essentially a consensus formation stage. Alternatives may need to establish the greatest possible area of common agreement.

Participation

The public information and participation techniques used should provide for the broadest possible public awareness and participation.

6. Final Program

Task

Once a decision is made, a public information effort must be made to ensure that everyone who participated knows what the decision was and why it was made.

Participation

This phase is primarily informational and evaluative. A measure of effectiveness of the Participation Plan should be conducted with sensitivity to the responses received during the public involvement phase.

7. Implementation and Monitoring

Task

This phase will consist of developing an Implementation Plan which tells who will do what, when, and where. Implementation will also indicate how the final program fits into the budget process. The monitoring of the program will be a continuing process to measure the production of the agency's work program.

Participation

The major involvement will be by agency personnel with participation by a limited group of publics.

G. Format for Public Participation Plans

The design of a Public Participation Plan will assist the State Forest Resources Planner to determine the objective of public participation in each phase of the planning process, the information needed, publics to be included, and resources (personnel and dollars) to complete each phase of the process. (See Exhibit 4)

The following is a suggested format for Public Participation Plans:

1. Definition of the Program

- a. Background Data
- b. Current Situation

This section gives a summary of how the agency got where it is today. The purpose is to inform publics of the agency's present programs and to assist publics in determining what segments of the agency's responsibility affects them. This will also serve to assist the resource agency to identify affected publics.

2. Description of Where the Agency is in the Planning Process

This section summarizes where the agency stands in relation to its own planning process. The description should include how public participation phases will be integrated with the project planning phases.

3. Public Involvement Goals and Objectives

The goals and objectives section will provide for the agency and publics a description of what the efforts are expected to accomplish. The objectives will be the targets for the agency planners and will be used in determining public participation techniques, target publics, and timeframes for completion.

4. Resources and Information Requirements

The resources and information needs include:

- a. A list of likely publics affected by the study.
- b. What information will publics need to know?
- c. What information will agency need to receive from publics?

FORMAT OF PUBLIC PARTICIPATION PLAN

Planning Phase: Preplanning	Planning Product: Work Plan 1. Budget 2. Public Participation Program 3. Organizational Management Structure 4. Work Program Time Frame: 1/1/80 - 7/1/80
Scope of Publics to be involved	All Publics
Information Needed <u>from</u> Public: 1. Public perception of problems, issues 2. Scope of study to include parameters 3. Identify publics interested in participating in study	Information Needed <u>by</u> Public: 1. Purpose for the study. 2. Statement of the problem 3. Program constraints 4. What's this public participation all about?
Publication Participation Plan (including techniques) for Planning Phase: Media (radio, T. V., mass mail-outs) - ask for information back Stories in special interest publications and newspapers Series of Workshops - Task force formed from interested participants Inform other Departments and elected officials	
Personnel and needed skills: 1. Facilitator skills for workshops 2. 5 Agency personnel from each district.	Cost: @ \$1.000/workshop for five (5) districts - Total \$5,000

- d. What public participation techniques are to be used?
- e. What skills and how many personnel will be necessary to match the requirements of projected techniques?
- f. What is the cost of various techniques?

5. List of Perceived Concerns or Questions that Publics May Have

The list may be gathered from both agency personnel and other publics. The identification of concerns will give the Forest Resources Planner a better opportunity to determine the informational needs of both in-house agency personnel and the various publics.

6. Explanation of How Resource Agency Will Store, Analyze, and Evaluate Public Input

- a. Storage and Retrieval - How will the input be stored: computer, filing system, punch card system?
- b. Analysis Method - The method by which the data will be analyzed, in addition to the form in which the information will be given to the decisionmaker.
- c. Evaluation - Description of how the analyzed data will be used in the decisionmaking process.

H. Selected Public Participation Techniques

There are numerous techniques^{1/} for soliciting input from various publics. The below listing covers those techniques most likely to be used in the State Forest Resources Planning Process. The most important criteria for choosing a public participation technique is the fitting of the method to the purpose or objective. The key idea is that format follows function. Other considerations include: target publics to be involved, time limitations, available funding, staff expertise, complexity of information, program priority, and needed information.

The following techniques are discussed in detail:

- 1. Public meetings
- 2. Advisory Committees

^{1/} For additional information on techniques, see Forest Service Inform and Involve Handbook (Draft, August 1971)

3. Workshops
4. Survey
5. Nominal Group Process.

The discussion of each technique will include guidelines for each, in addition to some of the advantages and disadvantages. A cost guide is also attached.

1. PUBLIC MEETINGS

Public meetings are a conventional way of involving the public. A meeting should have a clear objective to foster useful participation.

a. Guidelines

Check with someone familiar with the local area before setting a date, time and place for the meeting. Choose a meeting place convenient to the expected attendees.

Before deciding on a place for the meeting, determine what equipment will be needed. If you are going to show slides, check your equipment in advance along with the facilities, such as room arrangement, electrical outlets, etc.

Extensive public information about the meeting, through newspapers, radio, television and letters to community organizations is essential. It is advisable to followup formal public information with as many personal contacts as possible, explaining to people the purpose of the meeting and inviting their attendance. Local citizens often are willing to assist with public information efforts, and usually have valuable insights about where to post notices and how else to attract the desired audience.

Attention should be paid to the atmosphere created during the meeting. Do you always appear as the "expert" or "authority?" Is there a strong feeling of "we" and "they?" The most important factor is for you to be non-defensive and willing to listen.

Several weeks is usually the minimal time needed for organizing a community meeting in order to adequately prepare materials and publicity.

b. Advantages

The public receives information about the agency's program, proposals, etc.

The agency obtains the public's reaction to their information.

The agency can clarify misconceptions and revise proposals based on the public's reaction.

c. Disadvantages

Tends to exaggerate differences among groups.

Often dominated by vocal minorities (axe-grinders).

Only better organized publics participate.

Highly formal, accenting the "we/them" syndrome.

Expensive in time.

2. ADVISORY COMMITTEES

One of the most frequently utilized techniques of public involvement is to establish a Citizen's Advisory Committee. These committees are known by a variety of names: Technical Committees, Working Groups, Task Forces, Ad Hoc Committees, etc. Advisory Committees can assist in a number of ways, depending on the composition and qualifications of the members. These include:

Act as a sounding board, allowing the agency to test its ideas before making final decisions or releasing documents to the public.

Monitor and evaluate the planning process and the Public Participation Program.

Assist in educating the public by transmitting information among individuals, interest groups and the agency.

Review technical data and make recommendations on its adequacy.

Aid in resolving conflicts among various interests.

Assist in developing priorities and evaluating alternatives.

Help select consultants and review contracts.

Review and make recommendations on the program budget.

Help host and participate in public meetings.

a. Guidelines

Carefully define the purposes and powers of the committee. Is it advisory to another organization? Does it have authority to write and publish its own reports and findings? Is it responsible for carrying out a program that already has been approved?

When appointing committee members, include a variety of skills and backgrounds appropriate to the problem at hand, e.g., for technically-oriented committee include specialists. The usefulness of a committee is often in bringing a variety of perspectives to bear on the problem.

Select (or elect) a committee chairman with effective leadership skills. This is often a major key to a successful committee. It is as important for the chairman to understand how to "enable" others in the group to participate as it is to have a great deal of expertise in the subject matter at hand. In some groups a "rotating chairman" may be useful for distributing responsibility among group members.

Match the format of the committee meeting to the information or product needed from the committee. Examples are: nominal group, role playing, presentations by group members, tours, movies, etc.

Allow sufficient time for the committee to do its work--committees usually need a number of months to become acquainted, become familiar with the problem, examine alternatives, and develop recommendations.

Ad hoc committees organized for specific tasks are useful for short-term public participation --their work has a natural beginning, middle, and end, which is satisfying to committee members and provides a time focus for the task.

When developing a committee report, be sure to summarize the steps taken by the committee to solve the problem. It is often useful to record the advantages and disadvantages of each alternative that was considered, so that others may understand the thinking of the committee.

b. Advantages

Allows direct public participation in the planning process, often with technical expertise.

Brings together persons from different agencies, interests and professions, and encourages them to communicate with each other.

Minimizes disagreement as to the feasibility of alternative courses of action.

c. Disadvantages

Advisory Committees tend to act as "decision-makers."

An expensive and risky technique.

Committee members may end up adopting the values of an agency.

Committee members from other agencies may only be participants to protect their own "turf."

Some people may dominate meetings.

3. WORKSHOPS

Workshops involve the public in adult learning and idea-sharing activities ranging from small-group informal discussions to highly organized training sessions. The type of workshops covered in this section of the manual are those that have a specific objective or product to attain. Examples are:

A listing of problems that participants feel should be addressed in a particular study. Such list might also be ranked in a workshop.

A listing of the critical factors to be analyzed as part of an environmental or social impact analysis.

The development of alternative solutions to specific problems.

a. Guidelines

Identify the desired product. Identify the desired products of the workshop, such as a set of alternatives, a ranking of alternatives, a list of impacts which should be analyzed, or possible solutions to a problem.

Design the activities. It is necessary to have a well-designed sequence of activities which will produce the desired product. Give the groups substantial responsibility, both in how the activity is completed and for the product.

Prepare instructional materials. If citizens are to effectively participate, they will need certain basic information. This information can be prepared in a workbook using a simple format and written in layman's language. The workshop process, team assignments, exercise instructions and other background materials should be included. Careful preparation of this resource material is one of the most important tasks prior to conducting the workshop itself.

Design and evaluation. After participants have completed the workshop they should have an opportunity to evaluate both the workshop process and product. Was the expenditure of time and effort worthwhile? What were the strong and weak points? Was it too long or not long enough? How could it be improved? Is there a better method? This evaluation may include completion of a written form, ranking items on a scale, or voting. Evaluation is facilitated when clear objectives of the workshop have been set forth at the start. Without some opportunities for evaluation, participants may be concerned that this important aspect has been neglected, or left to the discretion of agency staff.

Because the workshop is intended to provide maximum opportunity for interaction and negotiation, it should be limited to 12 to 15 participants. Sometimes, to include representatives of the entire community, the number of participants exceeds 15. In this instance, it is desirable to divide the attendees into smaller discussion groups which report back to the large group. Methods to insure representation while limiting size of workshops are:

Repeated workshops: A workshop can be repeated as often as necessary, allowing everyone who wishes to participate to go through the same experience.

Daytime workshop; evening meeting: Another approach is to conduct a daytime workshop, sharing the products produced at an evening session to which the community is invited. In effect the daytime results are reviewed by everyone who wishes to participate, thus reducing the dangers that the workshop will be seen as an exclusive consultation.

Interest group selection: Yet another method is for the agency to describe the specific interests that it feels a need to be represented in a workshop. Through consultation with the appropriate interest groups, the agency learns which individuals each group would like to have represent them. While this reduces the risk that the agency may be seen as "stacking the deck," it will not completely eliminate the possibility that some groups will feel unrepresented.

The typical workshop structure consists of three basic phases:

Orientation: During the orientation period, the purposes and structure of the workshop are reviewed, and the instructional materials provided to the participants so that they complete the activity which is to follow. This phase should be as brief as possible.

Group Activity: This is the period during which the participants, in a small or large group, perform the activities which will result in the desired product. These include team assignments, brainstorming sessions, group critiques, use of nominal group process or completion of response forms. The selection of spokespersons and recorders and use of flip charts are frequently employed techniques.

Group Evaluation: After the participants have created their product, an evaluation session should follow, during which the group discusses the product and process of the workshop.

b. Advantages

Directly involves participants in planning process.

Involves those who really want to have input in the program.

Total group can contribute.

c. Disadvantages

Requires substantial preparation by agency.

Demands considerable amount of participant's time.

4. SURVEY

Usually considered solely as a means of gathering information to assist in making decisions, a survey has a much greater potential use. It can, at the same time, involve the public by making respondents aware of issues, problems or options. The flyer on the following page was used as the cover sheet for an extensive questionnaire by a neighborhood association. Note how it informs, educates and warns as well as invites participation. A survey of woodlot owners asking about their problems could be an impetus for starting an owner's association, in addition to getting the information.

A survey may cover everyone in a particular group, a specific portion of the group, or a random sample from the group, depending on the purpose of the survey.

For public agencies needing to know the attitudes, opinions and other kinds of data about the public to which they are responsible and desiring to transmit certain information to that public, surveys can be very useful.

There are three primary survey methods: mail, telephone and face-to-face interview.

Mail

Less expensive than either telephone or face-to-face.

Least flexible of methods.

Lack of control.

Often the lowest response rates.

Telephone:

Greater flexibility.

More control.

Interviewer must build rapport rapidly.

Face-to-Face:

More control.

More flexible.

Most expensive.

a. Guidelines

Before attempting a survey the agency should explore other approaches to obtain the same information.

The survey technique often requires specialized expertise to be statistically reliable. Get appropriate technical assistance in selecting the sample, designing the questionnaire and analyzing the results. Carrying out the survey may be beyond the personnel, financial, and technical limitations of the agency.

Motivating the respondents to participate in the survey is of vital importance. To do this it is necessary to establish rapport and to convince them that participation will be to their benefit.

Respect for the dignity and privacy of the respondent is essential. The survey should not be undertaken unless confidentiality can be assured.

Before taking the survey into the field it should be pretested.

b. Advantages

Make a selected portion of public aware of issues.

Test both knowledge of the issues and attitudes of a selected sample of the public.

Gather facts about respondent's behavior.

Achieve results fairly quickly.

c. Disadvantages

Limited opportunity for feedback or group interaction.

Costs may be prohibitive.

Attitudes/opinions may be subject to the whim of the moment.

5. NOMINAL GROUP PROCESS

The nominal group process is a relatively simple, yet highly effective technique for the identification and ranking of problems, issues and concerns as perceived by a "nominal" group, or one having certain interests in common. It emphasizes the generation and discussion of ideas in a small-group setting offering each person an equal opportunity to participate. While interaction is encouraged, the process directs the participants toward elaboration and discussion of ideas rather than the debate of conflicting views. Domination by one person or a group is avoided.

a. Guidelines

The workshop should be limited to about 35 persons, divided into sub-groups of 6 to 9 participants.

Train sub-group recorders so that they have a thorough knowledge of the process. Although members of the nominal group may act as recorders, it is best to have a recorder who is not participating in the process.

Move things along from step to step. It is easy to fall into the trap of too much unproductive discussion and delay, prolonging the workshop unnecessarily.

Obtain adequate space to avoid interference among the sub-groups. Each should have its own table and flip chart.

Provide materials such as paper, pencils, marking pens, tape, flip charts or blackboards.

The importance of the nominal group process warrants its step-by-step description:

- (1) The question - Pose a question which relates to the issues, problems, or concerns of the participants. Such a question might be, "What do you see as the major forest resource related problems in this state?"
- (2) First ideas - In this 10-minute period, each participant lists any ideas that come to mind relating to the question. Emphasize that ideas should be written clearly and simply with only one idea per statement. Specify that they are not to talk during this period.
- (3) Display of ideas - When the time is up, each sub-group recorder begins writing the ideas of the sub-group on a flip chart, blackboard or other display area, one idea per person at a time. The recorder should write down the statement as expressed and must refrain from suggestions. Continue in round-robin fashion until all ideas have been listed. Encourage generation of new ideas for five more minutes as the group discusses the ideas and interaction develops.
- (4) Clarification of ideas - When all ideas are listed, the recorder reads off each of the statements on the list and asks the participants which of them needs clarification or comments. The important thing is what is said, not who said it. The leader has the responsibility of making sure the ideas are new, not rehashed ones and avoiding extensive debates which waste time.
- (5) Individual scoring - The members of each sub-group are asked to individually select the five most important items of concern to them. After listing the five, each participant is asked to place the number 5 next to the top one, 4 next to the second most important, 3 for the third, 2 for the fourth and 1 for the fifth. These are the individual point scores for the ideas.

- (6) Sub-group scoring - The sub-group recorders then read the ideas displayed, one at a time. Each participant indicates the number of points scored for each idea, and these are recorded on the display next to the idea. After the points have been recorded, they are added up to give a total score for each idea.
- (7) Nominal group review - The group as a whole reviews the ideas generated by the sub-groups for consolidation or clarification. This step must be carefully expedited since there is a potential for extensive, but unproductive debate. The recorder then reads through one of the sub-group lists, one statement at a time, and asks the participants of the entire workshop to help in finding identical or nearly identical ideas on other lists. Since the sub-groups are formed by random selection from all the workshop participants, many ideas are duplicated. By consensus of the entire workshop, one statement is chosen and the others are stricken. The recorder then moves to the second statement on the list ...and the third...until all the statements are read and duplications removed. It is sometimes desirable to combine ideas, but be aware of the danger of consolidating different ideas and thereby losing some.
- (8) Final scoring - Each workshop participant selects the top five statements from those remaining and scores them (five points for first choice, four for the next, etc.).
- (9) Final ranking - The remaining statements are then ranked by the total number of points each received from the entire group.

The statements receiving the highest scores are presumably the most important problems, issues or concerns of the nominal group. Does the ongoing plan, projects or programs of the agency address the findings of the group? If not, why not. Obviously, the nominal group process can be a useful tool.

b. Advantages

Obtain a large number of ideas or issues in a short period of time (2-2½ hours).

Every participant is involved.

Good starting point for the planning process.

c. Disadvantages

Does not allow for in-depth discussion.

Does not allow for conflict resolution.

I. Cost Guide

Below is a summary of probable costs for some of the most frequently used public involvement techniques.

Interviews (per 20 minute interview)	\$ 15 - \$ 30
Newspaper Advertising	250 - 750
Radio Advertising	250 - 750
News Release	100 - 500
Public Hearing	*2,500 - 6,500
Large Public Meeting	*2,500 - 6,500
Small Meeting or Workshop	*2,000 - 4,000
Publicity on Radio or TV	250 - 500
50-Page Report	5,000 - 10,000
200-Page Report	10,000 - 50,000
Information Bulletins (4-8 Pages)	500 - 1,500
Conducting a Survey:	
Per mailed questionnaire	3 - 5
Per telephone interview	10 - 15
Per personal interview	15 - 30

*May be reduced if a series of identical workshops or meetings are held.

J. Analysis of Public Comments

Various analysis techniques are available to assemble public responses for agency evaluation. Analysis provides for the organization, summarization, and documentation of public response to assist the agency in a balanced evaluation of all public opinions. Analysis means the examination of public comments, the separation of them into appropriate response categories, and the interpretation of comments. Evaluation means the affixing of values to public comments. Analysis methods are closely related to how and from whom the agency collects and evaluates public response. This section on analysis displays three (3) different methods: Content Summary Analysis, Codinvolve Analysis, and Public Values Analysis.

1. CONTENT SUMMARY ANALYSIS

The primary intent is to capture the sentence or sets of sentences (opinions and reasons) as the public expressed them in their own language. This type of analysis is useful because the original content is evaluated as complete sentence thought revealing the public's argumentation, discourse, originality, and emotion. The method emphasizes why an alternative is supported or not supported in the words of the public. It provides the agency with an organized summary of public responses for evaluation, and allows the agency to be responsive to the public.

The steps used in content analysis are as follows:

a. Documenting original response

Traceability is a key factor in the analysis process. To insure that the responses collected are traceable through all phases of the decision-making process, the following system of identification is used.

- (1) Date stamp the document in the upper left-hand corner as soon as it is received in your office.
- (2) Stamp the upper right-hand corner with the respondent identification number. This identification number includes the regional identification; assigned sequential number, and respondent's category.

The complete response identification number will include the following:

<u>Regional Identification</u>	<u>Sequential Number</u>	<u>Respondent Category</u>
R1	1	E*

The identification number stamped at the top right-hand corner of the first response received in Region 1 would be "R1-1E."

Every page of the response will be stamped and identified exactly the same as the first page, "R1-1E."

b. Determining respondent category

The following guidelines can be used to determine respondent category. Categories can be added, expanded, or combined, as the particular situation warrants.

*(E is the code letter "Environmental/Conservation/Civic category.)

Respondent Categories

Academic - Official of an educational institution or faculty member.

Business/Industry - Organizations or groups operating for profit.

Citizen - Individuals not representing a particular group, association, organization; retired State Forest Service personnel; students are included in this category.

Other - Unidentified, etc.

Environment/Conservation/Civic - Nonprofit organizations or groups, such as Society of American Foresters; Audubon Society; Sierra Club; League of Women Voters.

State Forest Service Personnel - Employees of the agency.

Government - Officials or units of government supported by tax dollars.

One of these seven categories will be stamped in the top center of the first page of each response. (Figure 4)

Assignment of Category Code

ACADEMIC	"A"
BUSINESS/INDUSTRY	"B"
CITIZEN	"C"
OTHER	"D"
ENVIRONMENT/CONSERVATION/ CIVIC	"E"
FOREST SERVICE PERSONNEL	"F"
GOVERNMENT	"G"

At this point, the original response will have been stamped three times -- date in the top left-hand corner; respondent category in the top center, and response identification number in the top right-hand corner. Also, every page of the response, assuming there is more than one page, will have been stamped with the response identification number in the top right-hand corner.

BE SURE THAT ALL PAGES OF AN INDIVIDUAL RESPONSE HAVE PAGE NUMBERS

c. Original, master, and copy files of response

- (1) Make two copies of each response. If all responses are analyzed at one location, only one copy is needed because the original can serve as the Master Markup Copy.
- (2) File original.
- (3) Use two copies for analysis: One will be the Master Markup Copy for eventual filing, and the second will be cut and pasted up for typing.

d. Markup of response

You will need No. 2 soft, black lead pencils, legal size folders, legal size paper, scissors, and scotch tape and the two copies indicated.

- (1) The persons analyzing response should place their initials at the bottom left-hand corner of the first page of the copies being analyzed. (See Figure 4)
- (2) Read the entire response before proceeding with the analysis.
- (3) Capture opinions and supportive reasons by underlining them with a pencil. (See Figure 4) Two important things to remember are: (a) DO NOT SEPARATE REASONS AND OPINIONS, and (b) WHEN IN DOUBT CAPTURE MORE INFORMATION THAN YOU NEED. There will be another review of the information you have captured, where duplicated material will be eliminated.
- (4) The substance of public response content (opinions and reasons) is captured and placed in various categories (chapters of the proposed documents in this example). The intent is to capture the sentences (opinions and reasons) as the public expressed them.

e. Coding response

All of the information on the two copies has to be coded. The following coding method should be used.

- (1) At the left margin nearest the information underlined, repeat the response identification number that is in the top right-hand corner of the page, e.g., R1-1E.
- (2) Add to this number the first letter of the document which the response refers to. This letter will be "P" if the response refers to the Program document and "A" if it refers to the Assessment document.
- (3) Follow the code letter "P" or "A" by the appropriate chapter number. Your code identification number should look like this: R1-1E-P-5. (Figure 4 (E)) The analyst should be familiar with both the Program and Assessment documents so that if a response does

not cite a specific chapter, the analyst will know whether the response refers to a specific chapter or whether it is general information.

- (4) If the information refers to both documents, use both document code letters and appropriate chapter numbers.

Example: R1-1E-P-5/A-1

- (5) There are three instances where the code letter "G," for general information, should be used:

- (a) If the information does not specifically refer to the Program or Assessment document, the code letter "G" will be used.

Example: R1-1E-G

- (b) If the information refers to the Program document, but not to a specific chapter, the code letter "G" for general would follow the document code "P."

Example: R1-1E-P-G

- (c) If the information refers to the Assessment document, but not to a specific chapter, the code letter "G" for general would be used following the document code letter "A."

Example: R1-1E-A-G

f. Sorting responses

There should be a folder for each chapter of each document (Program and Assessment) and each folder should be appropriately labeled. The underlined response should be cut out and filed in the appropriate folder. It is important that the code number at the left margin be included when cutting out information as this code number will indicate how information should be filed and traced, if necessary, back to the original response document.

g. Organizing responses

The responses collected in each chapter folder are given a final review by one person or small team to eliminate duplicative or irrelevant material and to make sure they are filed in the right folder. Responses are thus organized as closely as possible in a logical sequence: document, chapter, page, paragraph and taped to a legal size sheet of paper in preparation for final typing.

h. Master markup copy

The Master Markup Copy is marked and coded exactly the same as the xerox copy that was cut and pasted. The Master Markup Copy shows that the information was analyzed and can be pulled if needed later. From the coding, you can locate in the final analysis summary the exact wording of a response or its exact equivalent.

Figure 4

(A)

November 25, 1974

R1-1E

(B)

ENVIRONMENT/CONSERVATION/CIVIC

THE WILDLIFE SOCIETY
SUITE S-176
3900 Wisconsin Avenue, NW
Washington, D. C. 20250

September 25, 1974

Director
Maryland Forest Service
Annapolis Maryland 21401

Dear Director:

A full concern for the habitat requirements of wildlife actually would encompass all types of wildlife, endangered or otherwise. Wildlife's problem on forest lands has not been a lack of research as much as a lack of funds assigned to support adequate wildlife management programs. The presently-known facts and habitat management techniques, if applied and incorporated into today's programs, could go far to assure the future of optimum populations of wildlife on forest and range lands.

R1-1E-P-5

(C)

(D)

Figure 5

TABLE OF CONTENTS

STATE FOREST RESOURCES PLAN 1980

ASSESSMENT	PAGE NO.
Chapter 1	
2	
3	
etc.	
PROGRAM	
Chapter 1	
2	
3	
etc.	
GENERAL RESPONSE	
TABLE ON RESPONSES BY	
STATE AND RESPONDENT CATEGORY	
TABLE ON PETITION RESPONSES	

Figure 6

SAMPLE PAGE OF FINAL REPORT

ASSESSMENT OUTLINE DOCUMENT

CHAPTER 5 -- WILDLIFE AND FISH HABITAT

- (R1-37-A-5) Page 19--The last sentence in the third paragraph says that the combined area of all lakes, ponds, etc., smaller than 40 acres and of all streams less than 1/8 mile wide (660 feet) are included in land statistics. Such a grouping might be satisfactory for some purposes, but certainly not for an assessment of fisheries resources. The 1970 National Fishing Survey shows that 12.7 percent of American anglers prefer rivers and streams. Most man-made ponds are doubtless less than 40 acres in size, and the majority of fishing streams are probably less than 660 feet in width. A 660-foot minimum width would, in fact, not include the Potomac or any of its major drainages upstream from Washington, D. C.
- (R1-412-A-5) Page 74--Table 5 of Assessment--Fishing and hunting activities seem to have been omitted from the table.
- (R1-27-A-5) Page 137--The popular image of nonconsumptive users of wildlife, such as bird watchers, sometimes is a striking variance with reality. Often viewed as the province of timid, real old ladies, bird-watching can be a hardy and rugged activity.

(EVERY COMMENT MUST BE IDENTIFIED BY A CODE NUMBER
IN THE LEFT MARGIN)

Figure 7

<u>County</u>	<u>Academic</u>	<u>Business Industry</u>	<u>Citizen</u>	<u>Other</u>	<u>Environment Conser/Civic</u>	<u>Forest Service</u>	<u>Gov't</u>	<u>Total</u>
Plumas	20	18	14	3	8	20	1	
Pima	5	4	7	2	10	14	0	
Orange	7	3	11	15	10	5	2	
Waukesha	10	5	19	5	6	6	1	
Cobb	5	3	31	6	4	8	3	

Total

Figure 8

Petitions

<u>County</u>	<u>Number of Petitions</u>
Plumas	14
Pima	25
Orange	22
Waukesha	1
Cobb	9
Total	

2. CODINVOLVE ANALYSIS

Codinvolve analysis is a flexible, content analysis method specifically designed for objective analysis of public response -- coding, storing, retrieving, summarizing, and displaying that response as it is needed. Codinvolve is based on a coding process which provides quantitative summaries of all opinions and supporting reasons. Users of the method take public expressions at face value since Codinvolve Analysis will not make corrections for any shortcomings in citizen's input.

The purpose of the Codinvolve method is to summarize and display the number, content, and nature of public responses so they can be evaluated. It assembles public information and values, their underlying reasons, and new ideas and information about issues, geographic areas, and alternatives.

The basic steps in completing a Codinvolve Analysis are:

a. Agency questions

It is essential that the analysts know what information the agency wants from the public response. The key to a useful analysis is: What is the agency looking for?

b. Surveying the response

This step provides an overview of issues discussed and information provided in the response. Although it is important to specify agency questions, it is just as important that the structure of the analysis system not filter out any new or anticipated information. To be responsive to the varying nature of response, the analysis must have the capability to capture the full breadth of public response so that it can be summarized. In order to determine the breadth of issues, a sample of response is captured by means of a content summary reflecting the substance of comments. The content summary defines the range and diversity of opinions, supporting reasons, and factual material contained in the response.

c. Designing codebook and summary form

The two basic documents for a Codinvolve Analysis - the codebook and summary form - built around the results of the previous step.

The codebook contains instructions, definitions, and examples which show how information should be coded. It is a basic reference, and any changes in coding procedures must be noted in it. Reliability, the assurance that each coder's work will replicate that of other coders, is crucial to the system's success. In order to insure reliability among coders, the set of instructions must be clearly understandable and uniform.

The codebook tells the coder how to use the summary form on which information will be recorded. The summary form might be an edge-punch card or a computer card.

d. Coding response

Coding is the process of transferring the content of public response to a form that facilitates summary. The major objective in coding is to capture accurately and objectively the complete scope of information gathered. The principal obligation of the coder is to record only what the citizen said--not what the coder thinks he means. Coding is the process that must be entirely objective and replicable. This is possible with careful attention to coding procedure and training of coders.

To assure coder accuracy, reliability must be checked at regular intervals. These checks monitor how carefully the coder is following directions and objectively recording the content, how well instructions and directions in the codebook have been developed, and what revisions or additions to the codebook might be needed. Regular updating of instructions usually is necessary.

e. Organizing the report

Upon completion of coding, the analyst is ready to summarize the information into a form easy for agency use. Sorting usually is done either by hand (using edge-punch cards), by computer, or both. Each method is effective, but the long-range retrieval potential is far greater with hand sorting of edge-punch cards since they can be used by untrained personnel in remote field locations.

The end product of the codeinvolve method is tables that summarize all public response. Analysts must organize tables to answer agency questions and

to display the sentiment expressed by the public on other issues. For instance, if the agency is interested in how public response regarded three alternatives, they might want tables that show how opinion varied according to form of input, residence, who responded, and so forth. It is particularly important that the analysts provide information about all issues discussed, not just that related to the specific agency questions. This will insure that new or unanticipated information provided by citizens is not overlooked.

EXAMPLE: BALANCE OF OPINION BY FORM OF INPUT WITH SUPPORTING REASONS

Alternative 1	Form of Input			Form	
	Letters	Petitions	Reports	Letters	Total
For	82(1)	2(1)	3(1)	82(1)	169(1)
	90(S)	83(S)	3(S)	86(S)	262(S)
Against	31(1)	18(1)	4(1)	21(1)	72(1)
	35(S)	645(S)	5(S)	21(S)	706(S)

Reasons given in support of opinions expressed

Reasons for

Best for economy (151)
 Provide jobs (111)
 Provide mass recreation (61)
 Other alternatives too restrictive (43)
 Restricts intensive recreation (26)
 Restricts roads (19)
 Impact on local economy (9)
 Restricts timber harvest (4)
 Enough already (1)

Reasons Against

Already too many roads (72)
 Need more wilderness (65)
 Preserve for posterity (47)
 Protect areas from development (31)
 Protect areas from timber harvest (22)
 Protect areas from general misuse (12)
 Last chance (8)
 Wildlife values (3)

3. PUBLIC VALUES ANALYSIS

Multiplicity and overlap of individual activities and interest in the use of natural resources make it difficult to identify patterns of public preference and nearly impossible to identify a single socially acceptable schedule of goals for resource management. An alternative to the attempt to identify a single social choice is to try to chart and show public preferences for resource use and the conflicts of criteria that implementing these preferences generate.

Information about these conflicts may serve to guide the land manager in assessing the degree to which any management plan will be capable of satisfying a particular pattern of public demands, and in evaluating the acceptability of important features of individual management alternatives. Also, the same information may be used to measure the amount of agreement between immediate members of the professional staff and public interest groups that generated the various individual management alternatives.

To identify conflicts of interest in public preferences, resource managers must be able to systematically --

Identify or define unique types of preference patterns held by members of the public; and

determine how much difference exists among the type of preference patterns over each potential use of a resource.

The procedure we are describing is designed to provide the decisionmaker with quantitative estimates of the above information.

This method is a collection of computer procedures (statistical and modeling) which are designed to give a perspective on the goalmaking process. It identifies types of preference structures in the public; charts out conflicts of interest and estimates the level of conflict of interest within a community or between the community and the professional staff. It is a single, smooth system of analysis designed to produce information of a fairly high standard of validity and reliability.

All of the data required is generated in the course of a one-day public workshop. Two kinds of information may be gathered during the workshop--first, estimates about public opinion; second, estimates about professional staff opinion. Depending on the needs of the land manager, output between the two groups can be compared, or the outputs of the professional/technical staff may be used to evaluate the process and content of public input.

Step 1. Collection of the Data

In the first group--the public--about 40 representatives of various interest groups are asked to participate. All concerned interests must be represented among the public workshop participants. The group

cannot possibly represent all public viewpoints, but it ought to represent the interests of those concerned with public land use management. To identify the interests or values of the public, each participant is asked to rank seven types of uses of forest resources:

- . Watershed Management - Stewardship of state and private forest land that optimizes water quality, quantity and timing.
- . Wildlife Management - The concern of management for retaining a variety of wildlife (both game and nongame) and their habitat requirements.
- . Timber Management - Management of the National Forest for production and harvest of wood products as a continuing renewable resource.
- . Developed Recreation - The construction and maintenance of improved camping facilities such as tables, toilets, stoves, etc.
- . Dispersed Recreation - Low density use of state forest land for recreation where the experience is not facility oriented.
- . Mineral Extraction - Management of state forest land that permits exploration for and extraction of minerals including gas, coal and oil.
- . Wilderness - Maintenance of the forest in a primitive state where man is only a visitor.

These seven uses have been identified as distinct, but not necessarily mutually exclusive, management items. They cover the spectrum of goals for which most State Forestry Departments manage public lands and, as such, they may be termed "value objects."

Measurement of an individual's preference order for the seven management alternatives is obtained through use of a set of labels on which are individually printed one of the management items; on a separate sheet of paper a rectangular box is printed. The top of the box is labeled "Should Be Most Emphasized" and the bottom, "Should Be Least Emphasized." The workshop participant expresses his preference order among the alternatives by simply removing the labels and placing them in the order in which he desires.

Step 2. Quantitative Analysis

Once the base data has been gathered from the participants the quantitative analysis begins. The amount of value the individual places on the management alternative is assessed by the order he assigns each one. This total order, the "preference" order can be grouped by types.

This sequence and its interpretation has been refined to allow for implementation of results in 1½ hours to meet the requirements of a one-day workshop.

Step 2A. (KENDALL)

A statistical procedure (Kendall's concordance coefficient) is used to determine the general level of agreement (on a scale of 1 to 0) or disagreement in the total workshop group of the priority ranking of the seven management items. Put another way, the coefficient shows the amount of agreement, or lack of it, among the individual's responses. (A separate run of the program is required if the priority ranking of the state forest staff is required.

Step 2B. (ORDER)

Once the amount of agreement among the individuals is determined, it is then possible to establish a single least-disliked priority ranking of the seven management items for the total workshop group. This step is used where a single preference order is desired. If we had to provide only one management strategy, the one provided as a result of this step would have the best chance for political survival.

As an example, the first output (Figure 9) from this step might appear as:

<u>Variable (Original Management Item Number)</u>	<u>Rank (Workshop Priority Number)</u>
1 Watershed	1
2 Wildlife	2
3 Timber	7
4 Developed Recreation	6
5 Dispersed Recreation	3
6 Minerals	4
7 Wilderness	5

Figure 9

Example of the single least-disliked priority ranking of the seven management items.

Step 2C. (FACTOR)

This step involves the adaptation of a conventional mathematical procedure called factor analysis. It identifies subgroups within the public interest group, based on a similiarity of interest among them (i.e., maximum agreement on the preference ordering). The result of this procedure will be to put individuals together in a group which have like interests. By so doing; participants working under the compressed timeframe of the workshop will be capable of quickly constructing a set of management alternatives that is based on consensus.

In this step (see Figure 10) each individual is given a point in the two-dimensional model developed during the Step 2B (Figure 11) which indicates his position with respect to the seven factors.

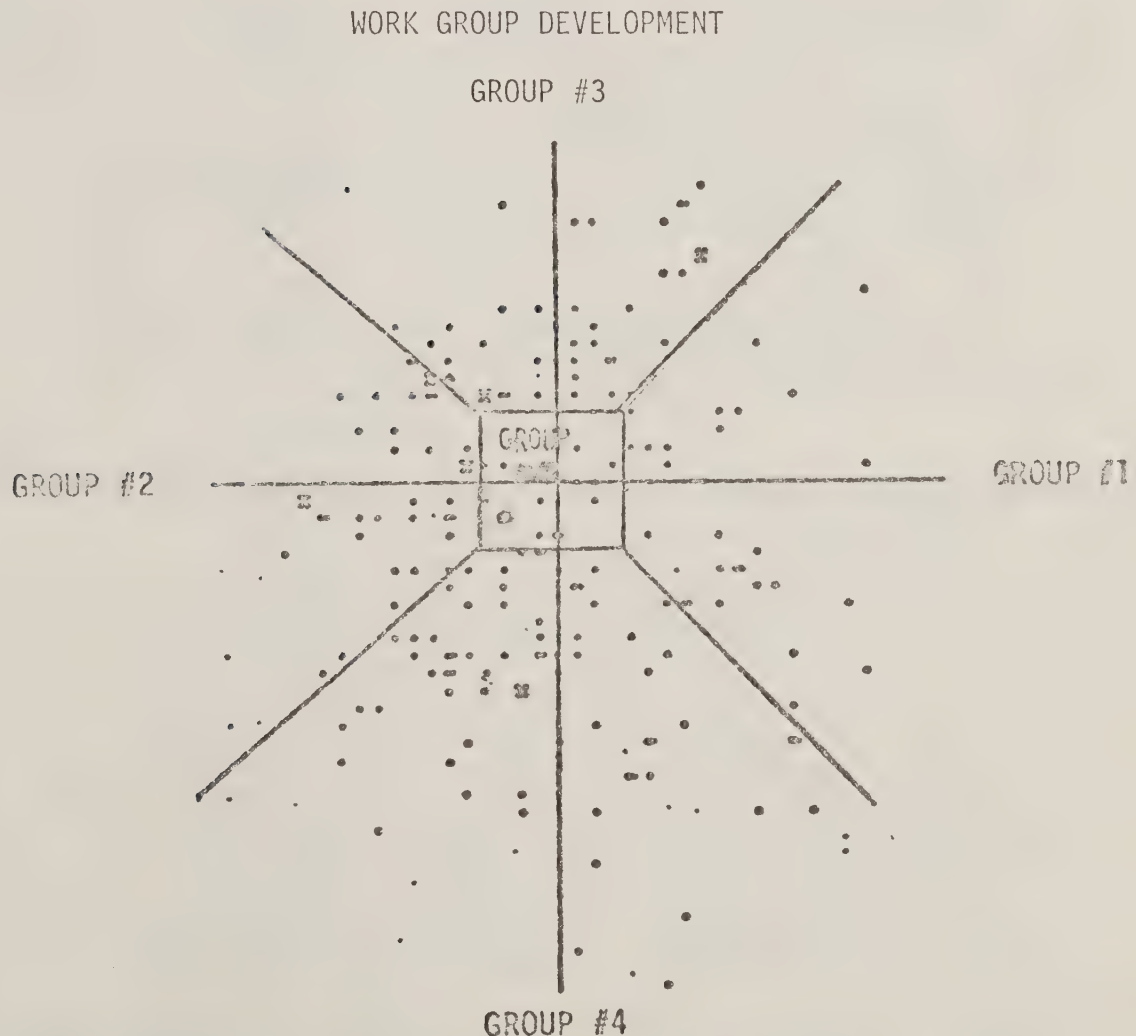


Figure 10 (Example of subgrouping Portioning)

The arrangement of these points provide information on the entire interest pattern of the workshop participants. Basically, Figure 10 shows each individual's relation to the average (i.e., those individuals lying in a square around the center of the axis). Remaining individuals fall in truncated pyramids so that those closest to the average are put in one group. Those individuals who are more closely identified with one extreme or the other are put in other groups with each group itself having a similiarity of preferences.

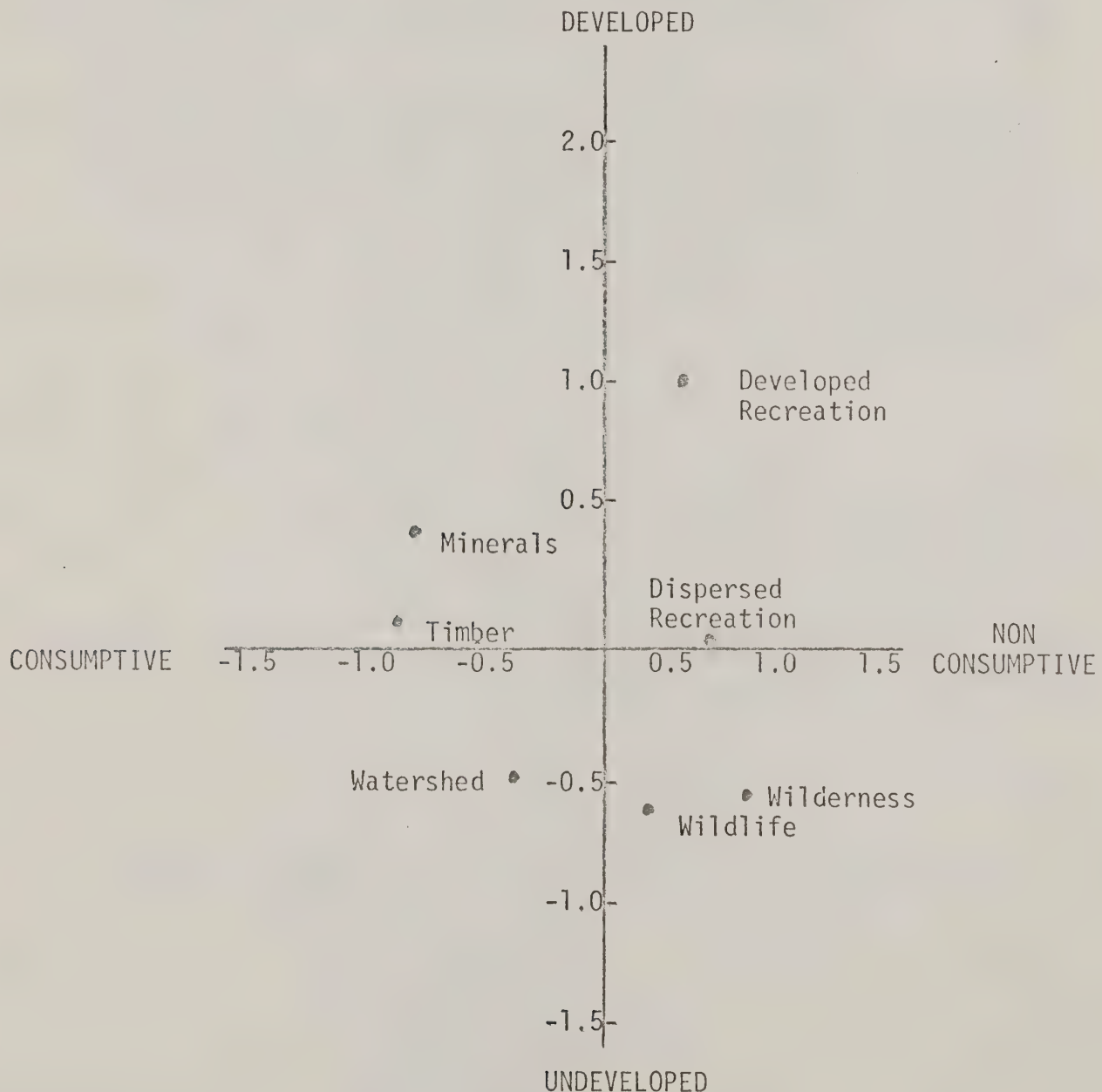


Figure 11 (Example of a two-dimensional map of interest items. Each variable exists only as it relates to the other six.

Step 2D. (COMPARE)

The first three steps of the process are always the same. From them come a number of other possible steps, the content of these steps being largely dependent on the kind of information and perspective the person conducting the workshop desires. In Step 2D the priority ranking of one subgroup is compared to the priority ranking of another subgroup, as illustrated in Figure 12.

Alternative Generation

<u>Average Group</u>	<u>Group 1</u>	<u>Group 2</u>	<u>Group 3</u>	<u>Group 4</u>
Wildlife	Wildlife	Minerals	Dev. Rec.	Disp. Rec.
Watershed	Watershed	Timber	Wildlife	Wildlife
Disp. Rec.	Wilderness	Wildlife	Watershed	Watershed
Dev. Rec.	Dev. Rec.	Watershed	Minerals	Timber
Timber	Disp. Rec.	Disp. Rec.	Timber	Wilderness
Minerals	Timber	Dev. Rec.	Disp. Rec.	Dev. Rec.
Wilderness	Minerals	Wilderness	Wilderness	Minerals

Figure 12 (Priority Ranking for 5 Subgroups)

An alternative ranking generated from a subgroup might read (from Group #2 in the above Figure):

Emphasize minerals and timber management while holding wildlife, watershed and dispersed recreation at current levels, and carry out this strategy at the expense of developed recreation and wilderness.

The subgroups may either be those composed entirely of the public interest group or those composed of the professional staff so that it is now possible to observe the relationship between the professional staff and public workshop participants.

From the information gathered and patterned, individuals are grouped as a result of a commonality of interest; this then becomes the starting point for a host of land management planning activities, including (1) generating strategies that contribute to maximizing the management items emphasized, and (2) generating specific criteria for evaluating effectiveness of the strategy. During this step interesting patterns of conflict within each strategy will become evident.

Summary

The Public Value Analysis Method (known as PUBLIC) provides the land manager/decisionmaker with quantitative estimates on the following parameters.

It determines the level of agreement or disagreement in a population about how to rank and manage resources.

It identifies harmonious subgroups for alternative development.

It measures the agreement between a State Forest organization and its concerned interest groups. This procedure compares the public's concept of agency priorities to the public's own priorities. If, for example, preference patterns within an agency are the same as those patterns expressed by the public, this in itself is a measure of harmony.

It structures information from the program to allow the manager to choose among management alternatives. For example, a description of the number and nature of disagreements in community preferences will indicate to the manager the extent to which any single management plan will meet with a degree of public approval. The resource manager can now evaluate the degree to which any alternative plan can satisfy public preference because he can identify which types of resource use provoke the most disagreement, and which the least.

A corollary to this is that the manager compares various management plans to each other according to a standard of public acceptance; and finally,

Conflicts of interest in public preferences are identified so that entirely new management alternatives may be constructed; that is, information about the conflicts of interest may be used in a variety of ways to identify publicly acceptable tradeoffs.

K. Some Considerations to Remember Regarding Public Involvement

1. Don't feel you have diminished your responsibility for making sound management decisions by seeking public input. You have not relinquished that responsibility.

2. Discard any notion that actions which will affect environmental quality or the public interest can be judged only by professionals. Public concern may well outweigh scientific considerations and justify proposal modifications.
3. Public involvement cannot be successful in an atmosphere of confrontation.
4. Be willing to accept criticism of yourself and the organization with a positive rather than a defensive attitude.
5. Give as much consideration to those who oppose you as you would to those who support you.
6. Public involvement must be sought before the decision is made. Public involvement must be initiated at the earliest stages of planning.
7. You must communicate and practice the philosophy that the rule of reason, rather than the rule of number, will prevail in the evaluation of public input. Public involvement is not a vote-counting process.
8. Public involvement planners cannot operate in a vacuum. They must be full members of the project planning team.
9. Give enough planning time for public involvement techniques. Often each technique has to be significantly redeveloped and modified to fit the situation, target group, project, etc.
10. Public involvement provides an excellent opportunity to increase the knowledge of target audiences about agency philosophies.
11. Public involvement should be kept in the open and in the spotlight if it is going to pay your agency maximum dividends.
12. Be sincere in your public involvement efforts. The public will be able to spot a negative attitude very quickly, and it will destroy credibility.
13. The attitude in which you plan your public involvement will affect the outcome. If you are planning public involvement because the law says you have to, that is the way it will be communicated to the publics.

However, if you plan your public involvement because you believe it will help you gather data allowing you to make a more comprehensive decision, your positive attitude will be communicated to the publics and they will respond likewise.

14. Be aware of the fact that many publics are not convinced that the Forestry Agency uses public input or even believes in it. If you are going to get honest input from these publics you must earn their trust. The best way to earn their trust is to display your trust in them.
15. Realize that emotions and feelings are just as real as actual fact, and they should be dealt with in the same manner as fact.
16. Treat the analyzed public inputs as any other data base.
17. Learn to document one-to-one discussions, small group meetings, and letters that are valuable sources of public input and if documented can be used in your decisionmaking process.
18. Remember that public involvement is a constant, ongoing process and at times must be accelerated and focused upon to meet certain needs.
19. Follow through with publics that take their time to provide you with input. It may be necessary if you want to call upon that person again in the future. Make the person or group feel they have contributed and that you appreciate their input.
20. Try not to re-invent the wheel when preparing public involvement program. Talk to other state agencies and regional planning commissions about their experiences.
21. Don't forget your agency is also a public. Strive to keep your personnel informed and involved in the project and seek their input.
22. Keep the line officer out of the spotlight as much as possible at meetings and workshops. He should be present to visually show his support for public involvement, but if he is in the spotlight the audience will ask him numerous questions which he will have to answer off-the-cuff. What is said by the line officer in a situation like that may well be forgotten by him at a later date, but it won't be forgotten by the person who asked the question.

23. Don't rely only upon press releases or radio and television spot announcements to get the people to come to a meeting. You have to do the inviting yourself via the telephone, in person, or by letter to those target groups you want to participate.
24. If people don't attend a meeting or workshop you have scheduled, don't interpret their lack of attendance as apathy or endorsement of your current management. Instead ask yourself the question, "Did I make this relevant enough for the publics to be interested?"
25. Use variety of public participation techniques. Don't try to accomplish your public involvement objectives with only one or two techniques.
26. Although a pending agency decision may be paramount on your mind, it may not rank very high on the personal priority lists of the various publics. Be aware of this situation and strive to make the agency's business as relevant as possible to the publics.
27. If you are asked a question that you don't know the answer to, don't be afraid to say, "I don't know." Trying to bluff your way through may cause problems in the future. Try to find the answer and follow through with the person who asked it.

Chapter IV - Information Management

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4. In What Form Is the Information Needed?

If a single format will satisfy all users of the information, then storage and retrieval in document form is likely to be appropriate. Computer processing may be used initially to summarize data format the document, but actual storage and retrieval on computer compatible media is not likely to be cost-effective unless there is subsequent need to sort, reformat, or perform new analyses on the data.

5. How Is the Information Acquired?

It is often possible to avoid one or more recording steps if the analysis, storage, and retrieval procedures can be coordinated with the data collection effort. If information is being collected in the field, then recording forms can be designed for direct keypunching. If information is being extracted from computerized data banks, the information can be reformatted appropriately at the time of extraction. Incompatibilities are likely to arise if decisions on data handling are postponed until after the data have been collected.

6. How Is the Information Structured?

Structure of the information weighs heavily in the choice of systems for handling it. Manual processing of numeric information requiring statistical analysis is time consuming, costly, and prone to errors. This is exactly the type of information for which computer systems are most highly evolved and efficient. In contrast, general purpose computer systems are less well suited to handling of textual material. Special purpose word processing systems should be considered if it becomes necessary to automate the handling of such information. Computer systems for maplike presentation of spatial information are evolving rapidly, but have not reached the stage of fine tuning typical of statistical applications.

7. What Information Handling Facilities Exist In Your Area?

Universities, state governments, and other large organizations are likely to have computer systems, microform facilities, and other information processing hardware and software that may be available for use at costs considerably below what would be required to establish comparable systems anew. Use of very modern facilities at rather nominal cost is frequently possible because the host organization is willing to make them available in the spirit of community service or sees some possibilities for cost sharing.

B. Overview of Information and Information Systems

Answers to the above questions coupled with availability of funds to finance the information handling will narrow the choices considerably. This section contains an overview of information and information systems which will provide a basis for explaining what the likely choices might be.

1. Nature of Information

As mentioned earlier, the term information is here considered to encompass any recorded knowledge as well as data that can be analyzed to produce knowledge. Information must be recorded in some form or another if one is to make use of it. A medium is something on which information can be recorded. Common information recording media include sheets of paper, cards, transparent film, magnetic tape, and so on. Also, there may be several methods of coding (or marking) on a given recording medium. The characteristics of both the information itself and the recording system must be considered in order to develop a convenient method of handling.

Let us look first at the information itself and draw some distinctions between different types of information. A first subdivision is between statistical information and textual information. Statistical information is generated by the processes of classification, counting, rating, and measurement. Statistical information tends to be quite structured and readily expressed in numeric or symbolic form. Structure of statistical information is typically described in terms of variables, observations, data cases, population parameters, sample estimates, and so on. In contrast, textual information is generated by verbal composition, rather loosely structured, and typically expressed by words composed of alphabetic characters. The structure of textual information is described in terms of words, sentences, lines, paragraphs, grammar, etc.

Both statistical and textual information contain varying degrees of locational specificity. If locational specificity is an important aspect of the information, then we characterize the information as being geographic in nature and encounter the need for geocoding. Geocoding is usually accomplished either through a set of spatial coordinates or a hierarchy of zones. Information systems designed for handling information that is highly location specific are called geographic information systems (GIS).

Temporal specificity or dating is another important consideration, which has many parallels with locational specificity since it is possible to treat time as an added dimension. If time is recorded as an item of information or indexing key, one must be certain that the information handling system is capable of utilizing temporal specificity in retrieval and analysis. However, no special terminology has arisen around the temporal aspect of information other than the term time series.

Accuracy is yet another consideration in dealing with information of all kinds. Very few sets of information are 100% accurate or correct. Some indication of the accuracy or quality associated with each item of information is useful for many purposes and crucial for some purposes.

Our first categorization of recording media and coding methods will be based on readability. Thus, a particular method of coding on a particular medium is a) readable by humans without the aid of machines; b) readability by humans enhanced through machines; c) readable by humans only with the aid of machines. The term document will be used here to describe a unit of recorded information that can be physically handled as a separate entity and has human readability of type a) or b). Examples of documents are books, typed or printed reports, maps, photographic prints, slides, cards, transparencies for overhead projectors, etc.

Two major categories of media systems remain by virtue of readability only through machines. One of these categories encompasses microforms such as microfilm and microfiche. The other category is composed of electronic media such as magnetic tapes, disks, and drums associated with computer processing.

The major focus here is on establishing and using a local repository of information. However, the information for stocking such repositories must come from somewhere. Therefore, a brief look at ways of acquiring information is in order.

2. Information Sources

There are three basic ways that information can be obtained. These are: a) consult other repositories of existing information; b) collect new data by remote sensing; c) collect new data by direct contact or on-site surveys. Costs, time required, and ability to tailor information to specific needs usually increase in this same order.

If another person or agency has previously collected the information, they may be willing to share it in order to partially recover costs already incurred. If so, this is likely to be the least cost source of such information. Likewise, the information can probably be extracted from its repository rather quickly. The major drawback associated with such information lies in lack of ability to control specifications. The existing information may be lacking in detail, accuracy, currency, format, etc. There is often some chance of reformatting the information as it is being extracted from the repository. However, little can be done to alleviate many other incompatibilities. Therefore, it is unlikely that information contained in external repositories will satisfy all needs.

When the needed information pertains to features of the terrain or human culture exposed to view from overhead it may well be possible to obtain all or part of the information by remote sensing. The term "remote sensing" encompasses aerial photography as well as other "sensors" that detect electromagnetic radiation beyond the limits of human vision. Thus, remote sensing may be useful even though a human observer cannot "see" the feature of interest. Even so, remote sensing is more likely to provide an overview rather than detailed information. Remote sensing is particularly useful for general description or categorization of land use, vegetation, and geomorphology. Information provided by remote sensors usually has a high degree of location specificity.

When the needed information cannot be obtained from existing repositories and is not well suited to remote sensing, the necessity arises for conducting on-site surveys. "On-site survey" is used very broadly here to encompass a wide variety of data collection activities including conducting interviews and administering questionnaires. On-site surveys tend to be labor intensive, slow, and logistically difficult. There is, however, a great deal of flexibility. Data collection can be tailored very closely to information needs.

The best strategy is to seek an optimum (or at least good) combination of data sources. Obtain whatever information is available from existing repositories. Make judicious use of remote sensing to supplement and update information economically. Then employ on-site surveys as necessary to fill in the gaps. Even when the bulk of data collection must be done on site, existing information and remote sensing can often be used to improve the sampling design.

If existing information is to be used effectively as just outlined, it must be stored in an organized and accessible fashion. Furthermore, it must be indexed according to expected criteria for search and retrieval. Previews of approaches to storage and retrieval are the next items on our agenda.

3. Information Storage

Given the state of the art in photocopying and electronics, automated duplication is possible with most information storage media. Whether financial resources are available to acquire the necessary equipment is another question. Perhaps the most important consideration, however, relates to the need for automated transcription or reformatting. When automated transcription is essential, the choice is immediately narrowed to electronic media.

For all practical purposes, electronic media are not readable by humans unless machines are available for transcription into visible, audible, or braille forms. These machines tend to be rather expensive (costs measured in thousands of dollars). Therefore, electronic media should be considered only when there is a need for transcription and budgetary resources are available for purchase and maintenance or leasing of the necessary equipment. Given sufficient funds, however, the possibilities for analysis and transcription of electronically stored information are almost endless. Further comment on these possibilities will be given later.

When automated transcription is not absolutely essential, then electronic media are likely to be justified economically only when one can make use of existing information systems having excess capacity. If such excess capacity is not available, then either microform or conventional shelf/drawer/box/mapcase systems will be appropriate. The choice between these two types of systems will depend on volume of information to be stored, space available, and budget.

When quantity of information to be stored is large, storage space is limited, and budgetary constraints not severe, then the possibility of using microforms should be explored. Microforms come in two major varieties. Perhaps the more familiar is microfilm. This is simply a narrow photographic filmstrip containing a series of frames or small pictures, each of which corresponds to a page of original material from the source document. The second type is microfiche in which a small film card or sheet takes the place of the roll. All microforms share the inconvenience of requiring that the original material be photographed to produce the microform. Likewise, the microforms must be viewed with a "reader" that enlarges the image and projects it on a screen. Costs for microform equipment are measured in hundreds of dollars.

When electronic media and microforms have been eliminated on the basis of budgetary constraints, equipment requirements, or a combination of the two, a person is faced with the necessity of managing such mundane matters as bookshelves, pamphlet boxes, and file cases. These commonplace receptacles serve their purpose much better when used for systematic setups than for sloppy stacks.

4. Information Retrieval

Sequential search through an entire file is feasible so long as the recording medium is humanly readable and the collection is not extensive. On the average, one can expect to examine half the collection in order to find a single item of interest. If the file is consulted with any regularity, the accumulated search time mounts up rather rapidly. The prospect of continuing to invest large amounts of time in searching the file may convince one to spend a little time on improving search procedures in the hope of saving considerable time in subsequent retrieval efforts.

In this context, it may be appropriate to warn against overkill. One has advanced to the rear if they invest more resources in retrieval systems than could possibly be saved by the systems.

If the same criterion is used to select items in most searches, a simple expedient may be to place the entire collection in some sequential order according to the value of this search criterion. For example, suppose that the stored items are reprints of articles or reports and the search criterion is author's last name. Then the sequential ordering would probably be alphabetic by last name. It might also facilitate matters to highlight the search (and ordering) criterion so that it can be seen at a glance. In a reprint file, for instance, one could place the author's name(s) on the front cover with a gummed label. In the jargon of information retrieval, author's name has become the search key or access point and the file is sequenced alphabetically according to this key.

Ordering a file in the manner suggested will facilitate searches in which desired items are stated in terms of the key used for sequencing. It does nothing, however, to promote searches that are not phrased in terms of the sequencing key. One may wish to access the file in terms of several different keys, and (in most cases) it can only be ordered in terms of one such key. The need thus arises to construct one or more indexes to the collection so that it can be searched according to an appropriate set of keys.

An index is a secondary file containing information on position of materials in the primary file. Each entry (item) in the index consists of a particular key value or descriptive code (descriptor) along with identifiers and positions of items in the primary file for which the descriptor is appropriate. The index entries are usually sequenced in some manner that is convenient for searching through to locate a given descriptor in the index. For example, an alphabetic subject index would normally be sequenced in alphabetic order of descriptive terms. Likewise, a nested (hierarchical) subject classification with numeric codes might naturally be sequenced in numeric order. In the latter case, one might have a two-part index. The first part would serve to translate descriptive terms into numeric codes, with this first part being sequenced alphabetically. The second part would serve to locate materials in the main file as keyed to numeric codes. The author/title and subject card catalogs used in libraries might be considered typical indexes. The many possible "bells and whistles" for indexes, however, make it difficult to call a particular type "typical". Still, there are major features that one can use in developing a taxonomy of indexes (see for example Jahoda, 1970).

The whole idea behind an index is that one can search the index more quickly and conveniently than the file itself. The price one pays for these conveniences takes several forms. A rather obvious cost associated with indexing is the cost of preparing and updating the index itself.

If the one who prepares the index is also the user, he/she should already be familiar with the index and its use. If this is not the case, then the user must invest time in learning how to use the index and becoming familiar with the vocabulary of descriptors. Training of new users represents a second cost of information retrieval through indexes.

A third cost arises from the likelihood of incomplete retrieval. Index entries are only surrogates of entries in the main file. To the extent that there may be an imperfect match between search criteria and descriptors used in indexing, so also one may not retrieve all of the potentially relevant items through an index directed search. Recall ratio (Jahoda, 1970) provides a formal measure of completeness in retrieval, with

$$\text{Recall ratio} = \frac{\text{Number of relevant items retrieved}}{\text{Number of relevant items in the file}}$$

The closer the recall ratio approaches unity, the more complete the retrieval. Unfortunately, recall ratio is almost never known in practice because it can only be determined by a complete search of the file.

Again because of poor correspondence between descriptors and search criteria, some of the items retrieved by an index directed search may not be relevant. Retrieved items that are not relevant are called "false drops". The higher the proportion of relevant items among those retrieved, the better the index has served its purpose. This proportion of relevant items is called the precision ratio (Jahoda, 1970). Unlike the case for recall ratio, it is relatively easy to determine precision ratio from the results of a search. Unfortunately, however, recall ratio and precision ratio usually tend in opposite directions. One can improve the recall ratio by broadening the search, but a larger proportion of false drops usually occurs as a result.

One should be fully cognizant of these costs associated with index use before undertaking construction of an index. It should also be evident that an index prepared for one purpose will not necessarily serve another purpose very well.

C. Storage and Retrieval of Documents

If planning is based (as good planning must be) on resource assessments, economic assessments, social assessments, past and present land use, and public involvement; then the planning staff is certain to accumulate substantial quantities of documents taking several physical forms. These will include books, journal articles, general reports, special reports, newspaper clippings, notes, correspondence, agendas, minutes of meetings, slides and overhead transparencies used in presentations, preliminary plans, reviews of preliminary plans, and so on and on. Some of these documents will relate to one issue or phase of planning, some will relate to another issue or phase of planning, and some will relate to several issues or phases of planning.

The first concern in dealing with this deluge of documents is where to put them (storage) so that they will not substantially restrict the use of office space and yet remain available for later reference. The storage system selected upon initial receipt is often to pile them upon desks, tables, shelves, or other relatively level surfaces with the piles sequenced in order of most recent arrival. Sooner or later, however, a person may perceive that the piles have proliferated to the point of preempting practically all potential positions. Alternatively, one may have need of something that might possibly lie in the midst of some such pile. At this juncture, the perceptive person may come to appreciate that filing is preferable to piling.

1. Filing Systems

The basic choices to be made in selecting a system for document storage are relatively few. However, the end result can cost a lot or a little depending mostly on the appearance of the receptacles in which the documents are kept.

As a starting point, it is usually undesirable to have documents lying horizontally and one on top of the other in a pile. The bulk and weight of the overlying documents makes it difficult to isolate and extract individual documents from the middle of the pile. Thus, the choice is narrowed to containers that will hold the documents in an upright position. The common candidate containers are notebooks, pamphlet boxes, portfolios, file drawers with pressure plates or hanging pockets, map tubes and racks, slide boxes, slide racks, card cases, photo albums, and envelopes. Price does not necessarily have much bearing on servicability. Metal cabinets with file drawers are not substantially more useful than heavy cardboard file drawers. In fact, the latter may be more convenient by virtue of light weight and stackability. Although perhaps not as attractive, inexpensive metal utility shelves are fully as useful as wooden bookshelves; with the additional advantage of easy takedown and compact storage when not in use. Plastic covered notebooks are not much better than cardboard covered notebooks unless you plan to tote them around regularly in the rain. Likewise, pamphlet boxes made by cutting down laundry detergent cartons and covering them with contact paper are almost as good as the commercial versions.

A second guideline is that one ought not attempt to store documents with very different physical forms in the same container, or even in adjacent containers. Thus books should not be stored in file drawers, and even mixtures of books and pamphlet boxes on the same shelf can be awkward since the books tend to fall over when a pamphlet box is removed from the shelf. Likewise, slide boxes and card boxes should be separated from books, pamphlet boxes, and notebooks. Notebooks and pamphlet boxes, however, do seem to make reasonably good shelfmates especially if the notebooks are large.

After one has decided on a mixture of storage containers that matches the mixture of document types and budget constraints, the next question that arises is whether documents relating to the same topic should be stored adjacent to one another. There are both advantages and disadvantages to such proximity. An advantage is that documents selected in a given search will be located in one or a few places instead of dispersed through the files. A disadvantage is that a given document can be filed under only one topic, even though it may relate to several topics. A second disadvantage is that some of the topic collections may become rather large, thus making it difficult to locate a given document among the many stored under the topic heading. Likewise, grouping by topic still leaves the question as to how topics should be sequenced on the shelves or in the cabinets.

It is definitely simpler not to attempt grouping by topic as far as physical location in storage is concerned. If no topic grouping is attempted, positioning within storage is by order of acquisition. As each document is received, it is assigned an accession number (i.e., number used to access the document in storage). The use of accession numbers simply amounts to numbering documents in the order that they are received and then placing them in the next available position of the appropriate container taking into account the physical nature of the document. Each container is given an external label showing the range of accession numbers that have been stored within it. Matching physical nature of document to an appropriate type of container may mean that accession numbers within containers of a given type are not continuous. Nevertheless, documents within containers of the same type should be sequenced in ascending order of accession number. A given document can be retrieved readily if one knows its physical type and accession number.

The use of accession numbers is probably worthwhile even if one opts for physical grouping by topic. Documents within topic grouping can then be sequenced by accession number and thus more readily located. This becomes more important as the number of documents under a given topic heading increases.

Topic groupings in physical storage are most easily implemented by an alphabetic arrangement of topics coupled with sequencing by accession number within topic. When an item pertains to multiple topics, a partial solution is to insert "see also" sheets in place of the item itself for multiple filings.

A more complicated approach to topic grouping in physical storage is through a hierarchical classification designated by numeric codes. Items are classified in the hierarchy and then sequenced by numeric codes in physical storage. Both the Dewey Decimal System and the Oxford classification of forestry literature are of this type.

An arrangement by topic in physical storage constitutes a single search criterion or key that can be used for locating and retrieving items from the file. For some purposes, such a single key may satisfy the needs for information retrieval. More frequently, however, needs will arise for retrieval by more than one key. Construction of an index will be necessary if the retrieval key is not incorporated in any physical grouping.

2. Indexing Systems

Each aspect of index construction has several variations, leading to many possible combinations of features in the end product. However, it is not really necessary to have a course in pharmacology in order to take a pill. Likewise, it is not necessary to be a librarian in order to set up a serviceable index. A brief look at some major variations will help to provide perspective. We will then briefly examine some popular styles of indexes. One of these styles should come close to meeting your needs. Fine tuning can then be undertaken without great concern for possible disruption of major mechanisms.

As indicated earlier, an index is composed of a series of index entries. Each index entry is made up of terms describing the content of the document (content descriptors) and identifiers of documents (document descriptors) which have that particular type of content. Some indexes are set up so that only one document is referenced per index entry, in which case the set of document descriptors would be quite detailed and an abstract of the contents might even be given on the entry. This approach produces an index having as many entries as documents indexed, and possibly even more entries than documents. Other indexes are set up so that a single index entry can reference a whole list of documents, in which case document descriptors may be limited to accession numbers. The latter approach minimizes the number of index units that must be prepared and gives a compact index, but relatively little information about a document can be gleaned from the index alone.

Some indexes utilize a controlled vocabulary so there will be few synonyms among the content descriptors. Effective vocabulary control requires the preparation of a thesaurus (codebook) listing the permissible content descriptors along with interpretive rules. This reduces redundancy in the index, but requires that the index be entered indirectly through the thesaurus or codebook. Indexes lacking vocabulary control avoid the need for a thesaurus, but redundancy of descriptors is usually high. Thus, a large number of "see also" references may be needed in the absence of vocabulary control.

The content descriptor, along with any modifiers, actually used on a particular index entry is called an access point. An important consideration is the possibility of combining or coordinating access points at the time an index is searched. Indexes that are designed to allow such combination at search time are called post-coordinate, or simply coordinate, indexes. Coordinate indexes are especially good for logical product searches. If X and Y are two access points, a logical product search is one designed to retrieve documents for which both X and Y are appropriate descriptors. Other types of searches involving multiple access points are logical sum and logical difference searches. A logical sum search involving X and Y would extract documents indexed by either X or Y. A logical difference search might, for instance, extract documents indexed as X but not Y.

The concepts of depth and specificity are also useful in describing indexes. Depth of indexing refers to the number of index entries per document. Specificity of indexing refers to the discriminatory power of the descriptors used as access points. Depth of indexing may depend in part on specificity of indexing. If the descriptors are very specific, relatively few of them will apply to a given document. This reduces depth of indexing and facilitates searches for specific topics. When descriptors are all specific, however, generic searches for broad subjects become more time consuming by virtue of the need to search a large number of specific descriptors that are included under the broad topic of the search.

This raises a point that might be considered some sort of natural law of indexing. If an index is well conceived, time spent searching and time spent indexing are likely to be inversely related. By spending more time indexing, it is usually possible to reduce time spent searching. An immediate corollary is that files do not merit much time spent on indexing if searches are infrequent and topics are broad. Also, do not lose sight of the fact that one can spend a great deal of time on an ill-conceived index without realizing substantial benefits in reduced search time.

With this as background we can proceed to discuss the more common types of indexes, defining additional terminology as needed. We will begin with indexes that are not meant to support coordinate searches. Coordinate indexes tend to be a little more complicated so they will be described last.

(a) Alphabetic Title Index

If each document has or is given a title, one can construct a very simple index by using the whole title as a single descriptor and preparing one index entry for each document, with the entries being kept in alphabetical order.

Such a rudimentary title index is good for recall, but not for discovery. "Recall" is when you want to locate a document for which you remember at least part of the title. "Discovery" is when you want to locate documents on a given topic, and expect to obtain documents which you have not previously encountered.

When the documents are books, articles, and reports, an alphabetic author index serves much the same recall purpose. In fact, a combined alphabetic title and author index is one of the standard library card catalogs and should require little additional comment by virtue of this familiarity.

(b) Keyword Out of Context (KWOC) Index

When one conducts a search for discovery (as opposed to a search for recall) the natural tendency is to begin by mentally assembling a list of key words or key phrases which embody the objects of the search. The simplest transition from such a "shopping list" to an index is offered by the alphabetically sequenced keyword out of context index lacking vocabulary control. To make a long story short, this is essentially the nature of the subject card catalog in libraries.

To construct such an index, one chooses a set of single-word or multi-word descriptors to serve as a likely set of access points for a given document. Each of these descriptors selected at the time of indexing is treated as a single, integral keyword even if it actually consists of a word string. An index entry is prepared for each keyword (access point). The entry highlights the descriptive keyword and document descriptors necessary to locate the document in the file. Optionally, the entry may also contain the title and possibly a short abstract of the document. Keywords selected as access points may or may not appear in the title of the document. In any case, the title is a separate and distinct listing on the entry if it appears at all. This independence of keywords and title gives rise to the "out of context" terminology which sets this rather general type of index apart from a rather specific type known as "keyword in context" that will be discussed in the next subsection.

If the KWOC index incorporates vocabulary control, the keywords used as access points will be selected from the vocabulary listed in a thesaurus. If vocabulary control is not used, keywords are selected according to the judgment of the person doing the indexing.

When a KWOC index is used for a search, one begins with their "shopping list" of potentially relevant descriptors (keywords). If the index has a controlled vocabulary, the next step is to check each potential keyword in the shopping list against the permissible set of keywords listed in the thesaurus. If a given descriptor in the shopping list does not appear in the thesaurus, it is replaced by the closest equivalent that does appear.

The thesaurus may also suggest other potential descriptors via "see also" references. After any such appropriate thesaurus screening, the (revised) shopping list of descriptors is used to search the index for potentially relevant documents, yielding a set of document descriptors by which the documents themselves can be retrieved from the files. Any obvious false drops are discarded at this point. The remaining documents are then pulled from the files and examined for relevancy. False drops are again discarded, yielding a final set of relevant documents.

The KWOC index is simple to understand and use, but the subject specific nature of keyword selection usually limits utility of the index to the purpose for which it was prepared. KWOC indexes lend themselves to logical sum searches, but not so readily to logical product and logical difference searches. If depth of indexing is substantial, a limited amount of product and difference sorting can be done by matching multiple index entries for the same document. The rest will have to be done by sorting documents after extraction from the files.

(c) Keyword In Context (KWIC) Index

Keyword in context indexes have become popular in recent years for two reasons. One of these reasons is the mechanical nature of the KWIC indexing process which lends itself simply and easily to automation. The second is that a KWIC index is not usually prepared with a given application in mind, thus making it useful for a variety of purposes by several persons.

Keywords for a KWIC index are usually selected from the title of the document, with all major words in the title serving as access points or keywords. Thus, KWIC indexes have considerable depth. Vocabulary control in KWIC indexes is very minimal. A list of "delete" words is prepared containing articles, prepositions, conjunctions, and other words not considered to carry indexable information. Any word in the title not on the "delete" list becomes a keyword or access point.

A KWIC index entry is prepared by centering the keyword on the line and surrounding it by the remainder of the title. The surrounding title words provide the "context" which gives KWIC its name. Any space available at the left of the line is filled with additional words from the title by a "wrap-around" continuation from the end of the line. An accession number or other document code is placed at the extreme right of the line to provide for locating the document in the file. A document entitled "Information Storage and Retrieval Systems" with accession number 158 might carry KWIC entries as follows:

Systems.	Information	Storage and Retrieval	00158
Storage and	Retrieval	Systems. Information	00158
Information	Storage	and Retrieval Systems.	00158
and Retrieval	Systems.	Information Storage	00158

Several variations in KWIC indexing procedure provide tradeoffs that increase utility or reduce indexing cost at the expense of other features.

One likely source of deficiency in a KWIC index is that the author of the document may not have titled it in such a way that it provides keywords typical of the jargon in a given discipline. One way around this deficiency is to augment the original title with an appropriate subtitle. Major words used to augment the title thus become additional keywords. The ultimate extension of this occurs where the documents are such that they do not carry titles at all (e.g., correspondence) and the indexer must supply a surrogate title for KWIC indexing.

Another modification is to reduce the depth of indexing by having a person make a preliminary title scan in which keywords are flagged. Access points are then entered only for flagged words in the title. This reduces cost of preparing actual index entries, but also narrows the scope and utility of the index. Furthermore, the cost of the title scan must be subtracted from any savings.

As indicated earlier, preparation of KWIC indexes can be easily computerized, and several suppliers of computer software offer programs for this purpose.

(d) Indexes Based on Nested Classifications

Another fairly conventional approach to indexing is to set up a hierarchical (nested) classification of some sort along with a code to represent category and level within category. The category/level code then serves as a content descriptor for indexing.

Relatively minor variations on this idea often receive rather impressive names such as "alphabetico-classified" and "Faceted" (see Jahoda, 1970). Most of these variations have to do with nature of the code (e.g., alphabetic vs. numeric), scope of the classification, and overlap between categories. Since the basic idea here is relatively easy to grasp, we will not dwell on these variations individually. A person considering such an index is simply advised to use the form that seems most natural and useful.

There are many examples after which to pattern such classifications. Perhaps the most familiar classifications are the several taxonomies of natural features such as plants, animals, rocks, soils, etc. These taxonomies are designed to eliminate overlap between categories completely. While it helps to minimize such overlap in classifications of document contents, a certain amount of cross-classification (i.e., depth of indexing) can often be handled without too much difficulty. In fact, the time, expense, and fuss involved in generating a sophisticated mutually exclusive classification scheme is often not worth the bother. If one is contemplating going the classification route, good strategy is probably to adopt a fairly simple scheme in which both categories and levels can be expanded as needed.

It should be pointed out that controlled vocabulary as expressed in a thesaurus or codebook is a necessary part of the classification approach. One consequence of this is that new indexers or index users often have to spend considerable time becoming acquainted with the codebook.

(e) UNITERM Method of Coordinate Indexing

We turn now to methods of coordinate indexing which are designed to allow combining (coordinating) content descriptors at search time. The ability to coordinate content descriptors at search time facilitates logical product and logical difference searches considerably. Jahoda (1970) has a good discussion of coordinate indexing methods. This presentation will roughly parallel his, but in considerably more condensed form.

The most simplistic of the coordinate indexing methods is the "Uniterm" approach. In a Uniterm system there is one descriptor on each card or sheet. The documents are given accession numbers, and the accession numbers of documents referenced by the descriptor appear on the sheet. To help in matching numbers from two different sheets, ten columns are provided so that accession numbers can be separated by last digit. All accession numbers with the same last digit are listed in the same column and in ascending order within the column. For example, index sheets for the descriptors "Indexing" and "Coordinate" might appear as shown in Figure 5.1a and 5.1b.

As an example of a logical product search with a Uniterm index, we might use the sheets (or cards) of Figure 5.1a and 5.1b to search for documents relating to coordinate indexing. Sheets for the two terms (or Uniterm descriptors) making up the combined (coordinated) descriptor "coordinate indexing" would be pulled from the (alphabetically ordered) file of index sheets and laid side by side. For this logical product search we need documents relating to both "indexing" and "coordinate". Therefore, we look for accession numbers that appear on both sheets. Documents with accession numbers 065, 123, 150, and 151 are potentially relevant, so they would be pulled from the file and examined. Some indexers prefer to go to a "shelf list" prior to pulling actual documents.

Figure 5.1a Sample Uniterm sheet for descriptor "Indexing".

Descriptor: Indexing									
0	1	2	3	4	5	6	7	8	9
150	151	122	123		065		567		
200	171		243						
210									
230									

Figure 5.1b Sample Uniterm sheet for descriptor "Coordinate".

Descriptor: Coordinate									
0	1	2	3	4	5	6	7	8	9
150	151	342	123		065			558	

A "shelf list" is a list of document titles (and possibly abstracts) by accession number. Some false drops can often be detected from the shelf list without having to pull actual documents.

As an example of a logical difference search we could use Figure 5.1 a and 5.1b to find documents relating to indexing methods that are not of the coordinate type. Accession numbers for such documents should appear on the sheet for "Indexing" (Figure 5.1a) but not on the sheet for "Coordinate" (Figure 5.1b). Potentially relevant documents for this search are 122, 171, 200, 210, 230, 243, and 567.

The Uniterm approach has the advantage of relative simplicity and minimal requirement for special supplies. The basic component of a Uniterm system is the Uniterm card or sheet. These can be produced easily by ditto or stencil. The Uniterm format can be set up on either index cards or punched paper suitable for loose-leaf notebook. If the sheet for a given descriptor becomes full of accession numbers, it is a relatively straightforward matter to make continuation sheets. Whether or not a shelf list is needed and/or worthwhile as an adjunct to the Uniterm index will depend on user preferences and secretarial help available.

The Uniterm system has some limitations. When several sheets are involved in the matching it becomes a practical necessity to copy results of intermediate matching steps to separate sheets of paper. Therefore, complicated Uniterm searches can become tedious. Loss of a densely coded Uniterm sheet can be a minor disaster because of lost information. It may be necessary to go through the entire set of documents or a shelf list in order to replace a single lost sheet or card.

(f) Optical Coincidence Method of Coordinate Indexing

The optical coincidence or "peek-a-boo" approach to coordinate indexing is particularly useful for working with a moderate number of items, each of which is classified with respect to several attributes.

This approach might be viewed as a modification of the Uniterm idea. As with Uniterm, one card or sheet is allotted to each descriptor. Likewise, a code is placed on the sheet or card for each item that is appropriately designated by the descriptor. However, the method of coding items is quite different. Instead of writing accession numbers on the index sheet, each item being indexed is assigned a position on the index sheets. If the descriptor on a sheet or card is appropriate to an item, the assigned position for that item is punched. If the descriptor is not appropriate, the assigned position for the item remains unpunched.

When sheets for two or more descriptors are superimposed, an item described by all descriptors will be evidenced by an open hole. Thus, logical product searches are conducted by superimposing descriptor cards or sheets and looking for holes against a lighted or colored background. Positions of holes are then translated as identifiers for documents or other items being indexed. Logical difference searches are a little more complicated, but can be accomplished by a series of comparisons.

Templates for marking positions are relatively easy to construct from acetate or cardboard. Finding a suitable device for doing the punching is not quite so easy. The most readily available punching device is a single-hole hand punch with a two-inch reach. The two-inch reach for this type of punch somewhat limits possible layouts of the form.

Another possible procedure is to use tabulating cards as the index cards and a keypunch for making the holes. This system has the advantage that the index cards can be reproduced automatically as they become worn or to create duplicate sets.

Optical coincidence systems can quite readily accommodate a few hundred items to be indexed. When the number of indexed items exceeds the capacity of an index card or sheet, however, it becomes necessary to create an entire set of additional cards or sheets for all descriptors. This stands in contrast to the Uniterm system where a continuation card can be added for one descriptor at a time. Such systems tend to become awkward when the indexed items number in the thousands.

(g) Edge-notched Cards

Edge-notched cards provide a third mechanism for coordinate indexing, but they are also useful for sorting other types of indexes.

The basis of the system is a set of index cards having holes around the edge. A needle can be inserted in any given hole, and the card will hang on the needle unless the edge of the card has been cut away thus opening the hole to the outside. A card thus notched will fall off the needle.

The simplest approach to coordinate indexing with edge-notched cards is to record the title, abstract, or other information for each document or indexed item on one card. Descriptors are then assigned to holes along the edge of the card. A notch is made at each hole representing a descriptor that is appropriate for the indexed item.

A logical sum search of such an index is performed with a single needle. The needle is inserted in the hole for the first descriptor of interest, and any cards falling are set aside as representing potentially relevant documents. The process is repeated on the cards remaining in the deck, but this time inserting the needle in the hole for the second descriptor of interest. The collection of cards falling from any hole indicates relevant items.

A logical product search can be performed either with one needle in several steps or several needles in one step. To perform the search with a single needle, successively sort the deck that drops from the previous step. The potentially relevant cards are thus those that have been notched for all of the descriptors being coordinated. The multiple needle approach is to insert needles in the holes for all descriptors of interest simultaneously. The relevant cards are those that drop away from the entire set of needles.

This simplistic approach to edge-notching tends to exhaust the holes available for coding descriptors rather quickly. To be specific, one could only use as many descriptors as there are holes. This is because any given descriptor must appear in the same position on all cards. However, the number of possible descriptors can be increased greatly by grouping adjacent sets of holes into "fields" and using multiple-hole codes.

A common tactic is to use a field of five adjacent holes to code the numeric digits 0-9. The first of the five holes is denoted "SF" which stands for "single figure". The next four holes are coded 7, 4, 2, and 1 respectively. Two-hole codes for the digits would be:

0	=	7	and	4
1	=	SF	and	1
2	=	SF	and	2
3	=	1	and	2
4	=	SF	and	4
5	=	4	and	1
6	=	4	and	2
7	=	SF	and	1
8	=	7	and	1
9	=	7	and	2

Another tactic is to use a double row of holes instead of a single row. With this scheme a numeric field consists of four adjacent sets of double holes. The digits 7, 4, 2, and 1 are coded by single deep notches to the inner row of holes. The remaining digits are coded by shallow double notches to the outer row of holes in the same combinations as given above.

With either of the above systems two numeric fields provide 100 codes, three numeric fields provide 1000 codes, and so on.

In like manner, fields for coding alphabetic characters can be constructed in several ways. It is even possible to overlap several different codes in the same field by using "random superimposed codes", but these are a little beyond our scope.

It is feasible to make homemade "keysort" cards for edge-notched coding by using a template to lay out the row(s) of holes and a hand punch to create the holes. However, this is tedious and generally not a very economical proposition. Ready-made cards are available in different formats from several companies such as "Indecks" of Arlington, Vermont. Notches can be made with scissors, but special punches designed for the purpose are much more convenient. Seven inch, size 1, double point knitting needles make very satisfactory sorting rods.

(h) Hybrid Indexes

Now that some of the more common approaches to indexing have been outlined, it should be emphasized that most satisfactory results will probably be achieved by combining the better features of several different indexing methods into a hybrid system.

For instance, edge-notched cards can be used as index sheets for either alphabetic or Uniterm type indexes. Edge-notching can provide a relatively rapid means of locating index cards for the desired descriptors without the necessity of keeping the index cards in a particular order. Likewise, edge-notched cards can be punched internally for optical coincidence as well as being notched externally for location of descriptors. Ingenious combinations of this sort give rise to an almost endless variety of effective indexing systems tailored to specific needs.

D. Storage and Retrieval of Facts and Data

Up to this point we have mostly been concerned with indexing systems of an indirect nature. An index search was expected to produce a list of identifiers for documents that might contain needed information, but the index search was not expected to produce the information itself. We next turn our attention to systems capable of producing the desired information as direct output instead of a reference to a document.

If there is not to be a separate set of documents on which information is recorded, it is fairly obvious that the same medium must serve for both indexing and recording of information. This narrows the likely choices considerably. It should be equally apparent that direct storage and retrieval systems will be easiest to formulate when the amount of information for an observational unit is small and uniformly structured from one observational unit to the next.

1. Information Structure Relative to System Design

There are a few manual systems and a rather large number of electronic systems that may be appropriate, depending on structure and quantity of information to be handled.

The least restrictive and most familiar manual system is the old standby consisting of a loose-leaf notebook indexed with finger tabs. This type of system imposes few restriction on nature of information recorded, but limits one to rather primitive sorts of indexing. Use of variously colored sheets may expand the indexing possibilities somewhat, but not a great deal. Notebook systems are likely to be the point of beginning for most attempts at organizing information, but they become unattractive rather rapidly as quantity of information increases.

Edge-notched cards provide a feasible basis for manual systems as long as the information to be recorded for any given observational unit will fit on one or a few of the edge-notched cards. Since edge-notched cards are seldom larger than 5 in. by 8 in., this is quite likely to constitute an important restriction. However, edge-notched cards do allow more sophisticated indexing than notebook systems.

Optical coincidence systems offer a third manual approach to handling of classification data. Classification data are those that can be characterized as either belonging to or not belonging to a given category. Measurement data can be handled only by condensation into rather broad groups or ranges with separate coding for each group or range. The number of available punching positions on optical coincidence sheets or cards has already been noted as a limitation. Map overlays constitute another optical coincidence system, with the main limitation being possible combinations of colors and patterns that can be superimposed without confusion.

If none of the manual systems appear to be suitable, one should consider the possibility of utilizing an electronic system. Those with little background on computers will probably find the current variety of electronic systems somewhat bewildering, and the explosive proliferation of such systems won't help to reduce these misgivings. Nevertheless, electronic systems offer our ultimate hope of coping with the information explosion of recent years that shows no sign of dwindling. Since we have concentrated thus far on manual systems, we now shift our emphasis in the direction of these electronic systems.

A given piece of electronic equipment for information processing can usually be made to serve many purposes by virtue of the fact that any desired sequence of basic operations can be generated through programmed instructions stored in memory modules. These programmed instructions constitute the "software" of the system. Notwithstanding evolution in hardware, it is primarily the multitude of variations in software that make electronic systems bewildering. This has been true not only for users, but also for programmers and systems analysts. Systems analysts and programmers have found it easiest to design and optimize software for handling collections of information that have very specific structures. Therefore, systems which serve one purpose admirably may not serve another purpose very well.

So-called "word processing" systems handle textual information quite nicely, but have very little facility for manipulating numeric information or images. Conversely, statistical systems that manipulate numeric information readily will often have only the most rudimentary capability for handling alphabetic information. Still other systems address problems of handling imagery and graphics. It is quite safe to say the "complete" systems do not yet exist. The present purpose is primarily to establish perspective which will serve as a basis for exploring electronic systems in more detail via the references listed in the bibliography.

2. File Structures

Our first concern will be with the more common ways of organizing collections of information on computer storage devices.

Unfortunately, there is not even complete uniformity of terminology from one system to the next. In view of this, we will define as few terms as possible. These few terms will be defined rather loosely, and may be encountered in slightly different contexts when working with different systems.

The term "file" occurs everywhere in the literature of information processing. In general, it refers to a collection of related information items that are somehow stored, processed, or accessed as a unit. Certain systems may impose restrictions on the nature of the relationship between information units in the file.

If the items in a file are stored "back-to-back" or "side-by-side" in computer memory, they are said to be organized sequentially. Sequential organization requires either large blocks of reserved storage to allow for expansion or constant shuffling of large blocks of information. The former tends to be wasteful of storage, and the latter of computer time.

Constant reshuffling of information as well as large blocks of blank storage can be avoided by allowing the items composing a file to be scattered through computer memory in disjoint fashion. If this option is chosen, one is forced to keep track of where the various items in the file are located in storage. This can be accomplished in several ways.

One obvious way is to construct a positional index in a designated section of the computer's memory. This is known in the jargon as an inverted file. Either accession numbers or some important attribute of the information may be used as the key for indexing (inversion).

Another way of keeping track of positions in memory is by a linked list. In a linked list, each item is accompanied by a pointer showing the position of the next item. Thus each item is linked to the next.

Both inverted files and linked lists require that substantial amounts of memory be devoted to information on position of items. Still another way of locating items that avoids this "overhead" storage cost is by a hashing function. A hashing function "computes" the position of an item according to the value of a unique identifier (hashing key) used to reference the item. The identifier is plugged into a mathematical formula, and the value computed from the formula is the appropriate address in computer memory.

A compromise approach might be to break a large file into subfiles. The starting position of each subfile could be determined from an index. Within a subfile the organization would be sequential. This would be known as an indexed sequential organization.

It should also be noted that the type of hardware may limit the choice of methods for file organization. Some storage devices can be positioned by the computer at any specified location for storage or retrieval of the next item. These are called random access or direct access storage devices. Direct access devices can support any of the organizations outlined above. Other storage devices (notably magnetic tape) are inherently sequential. They allow only reading from the next position, writing at the next position, or a return to the beginning. Such sequential storage devices can only support sequential file organization.

3. Computerizing the File Cabinet

For the user, the most natural transition from manual methods of information handling to electronic methods would be a "computerized file cabinet".

File cabinets contain rather diverse types of information organized into folders and indexed by labels on the tabs of the folders. One first "pulls" the entire folder; next determines the structure prevailing in the folder; then processes the information in the folder according to its structure. If one had to have a different cabinet (or even drawer) for each different type of information, the office would soon be full of cabinets.

A "computerized file cabinet" system would provide for indexed subfiles (the equivalent of the folder), but not impose rigid restrictions on uniformity of structure among subfiles. One subfile might contain abstracts of correspondence or minutes of meetings, another might contain statistical summaries, and still another might contain raw data or a computer program. The system would allow one to access subfiles according to a common index; determine structure within a subfile from header information attached to the subfile itself; and then route the contents of the file to appropriate auxiliary systems for actual processing.

Unfortunately, vendors of computer software have shown little enthusiasm for systems of this nature. There are two reasons for this. One is complexity involved in providing and linking subsystems for processing structurally diverse types of information. The other is the general impossibility of optimizing a system for different purposes simultaneously. In other words, such a system would be "a jack of all trades but master of none".

Software vendors have generally chosen to create systems that are optimized for processing a particular type of information. The transition from manual to computer systems may thus be akin to "filling the office with specialized file cabinets". If one makes frequent use of the specialized unit, then its acquisition and training for operation becomes worthwhile. If the specialized unit is rarely used, it may well prove to be little more than sophisticated and expensive clutter.

4. File-Oriented Systems

The early evolution of computerized systems for information processing gave us several families of file-oriented systems. File-oriented systems are specialized for the handling of independent sets of information structured according to rather rigid specifications. These systems usually handle only one, or at most a few, sets (files) in any given run. The "family groups" among such systems are composed of systems which handle the same kind of information. In the next few paragraphs we will look briefly at some of these "families".

Because statistical analysis is an ever present problem in many different settings, a great deal of effort has been directed to developing computer systems for statistical analysis. The "minor leagues" of the statistical processing world are populated by a great diversity of statistical software. Only three or four statistical systems, however, can really be considered "big league" by virtue of popularity and numerous installations. Unless one happens to be a statistical sophisticate, the most appropriate statistical system is probably SPSS (Statistical Package for the Social Sciences). The reasons for this recommendation are several. First, SPSS versions are available for most major computer systems. Second, the documentation for SPSS has copious detail relative to interpretation of results which aids those with statistically shallow backgrounds. Third, SPSS has a fairly good facility for storing and retrieving data sets between analytical steps. SAS (Statistical Analysis System) is another good system, but is not supported on as many different computers and does not have quite as much interpretive detail in its documentation. BMD (Biomedical Data) software is also used very widely, but its component programs are not as well integrated into a composite system. In particular, BMD does not match SPSS and SAS when it comes to storing and retrieving data between analytical steps.

The universal and commercially important need of business managers for inventory, accounting, personnel, mailing, and similar types of well-structured information occurring in large volumes has provided the most lucrative incentive to software vendors for producing information systems. The setting here is ideal for software vendors since the information is well-structured and the clients can afford to pay. Not surprisingly, then, generalized file-oriented information systems for business management are available from several different vendors for all of the major computers. Examples are Informatics Mark IV, Applications Software ASI-ST, and Program Products Data Analyzer. Since each system has its virtues and all such systems are expensive, acquisition of software in this class should be based on thorough study by a team including both prospective users and competent computer specialists. Also, further evolution of management information systems has given rise to "generalized database systems" which may be preferred under these circumstances.

"Word processing" systems manipulate files of text in ways such as reformatting, substituting one character string for another, deleting lines, and inserting lines. Some capability of this type is built into the "editor" section of the operating system for large computers that can be accessed from remote terminals. Special software packages with extended capabilities for word processing are also available for most of these large systems. Quite sophisticated word processing systems have even been developed for small computers. These minicomputer systems can often be leased from vendors such as Lanier for annual costs approximating those of a single secretarial position. When used effectively, even these small systems permit automation of enough routine tasks around the office to more than cover their cost.

Several graphics software packages of a file-oriented nature are now available which allow maplike displays, graphs, histograms, etc. to be produced on a computer line printer or simple cathode ray tube. The SYMAP system distributed by the Harvard Laboratory for Computer Graphics and Spatial Analysis makes an excellent point of beginning for exploring the world of computer mapping. Without some prior experience on a relatively simple system like SYMAP, it is extremely difficult to make rational choices among the more sophisticated "geographic information systems" (GIS) that require major commitments of money, personnel, and specialized equipment.

Perhaps the largest class of file-oriented software is comprised of individual, special-purpose programs rather than integrated "systems". Many operations research techniques appropriate for management planning are implemented in this way. Although not an integrated system, a well-chosen "library" of such utility programs may constitute a very important resource for full utilization of available information.

Various strategies or models for handling relationships have been developed for implementing database systems. Pioneering work in this area was carried out by the Data Base Task Group (DBTG) of the Conference on Data Systems Languages (CODASYL). Several commercial database systems are organized according to the principles set forth by the DBTG of CODASYL. The newest thing on the database scene is the so-called relational model which can be described in terms of tabulations. The relational model tends to simplify things for the database user, but has proven somewhat difficult to implement. Full relational database systems are still in the research stage.

A fairly large number of commercial database systems are now available, with costs commonly ranging between \$50,000 and \$100,000 and even exceeding \$100,000 in some cases. Obviously then, acquisition of a database system is not a matter to be undertaken lightly. Cardenas (1979) gives a good tabular summary of major characteristics for the more popular systems. The U. S. Forest Service along with several state planning agencies is making use of MRI's System 2000. Software AG's ADABAS and Cincom's TOTAL are also very popular in the business world. IBM's IMS accounts for a large part of database usage, but tends to be more complicated than some of the other systems. Several institutions such as universities that operate on more limited budgets utilize the SIR system. Major components of a database system are the data definition language (DDL), data manipulation language (DML), and query language. The DDL and DML components are typically utilized by computer programmers for storing and retrieving large blocks of data on a regular basis. The query language is designed for occasional users interested in retrieving small amounts of information.

To underscore the commitment involved in acquiring a database system, an organization should not even consider using such a system unless they are prepared to support at least a halftime position with responsibilities for administering the database and coordinating its users. This data base administrator (DBA) is a very important part of successful database applications. It should also be noted that database systems are designed to handle highly structured information. They are generally not appropriate for simple text processing, although they may incorporate rather sophisticated report writer facilities.

6. Geographic Information Systems

Geographic position constitutes a very important key for search and analysis of data bases relating to natural resources and land use planning. The spatial aspect of such information is not handled particularly well by the generalized database systems mentioned above. Furthermore, plotters and color television-type display devices are needed to convey the visual aspect of geographic information. These special requirements have led to development of geographic information systems (GIS) geared to spatial analysis and display.

5. Database Systems

As hinted earlier, the file-oriented approach to data storage and retrieval can soon generate a hodge-podge of systems. The modes of storage and retrieval as well as the protocol for use can vary widely from one such system to the next. Furthermore, considerable duplication often arises from the need to have a given piece of information appear in several different files. Failure to update all of these files uniformly is quite likely to produce contradictory sets of data for a given item.

These problems and inefficiencies of the file-oriented approach have caused the evolution of generalized database systems. Database systems are supposed to eliminate duplication of data items; make it possible to change programs without changing the data base; increase information processing efficiency; and enhance security of the data base.

When faced with a new relationship between existing information items in a file-oriented environment, one may have the luxury of retrieving the items involved and creating a new subfile structured so as to represent the new relationship most naturally. In a database environment, however, the emphasis on nonredundancy usually precludes such expansion of files. One is then faced with the need to store the relationship as opposed to storing additional data. This is essentially the problem of multiple indexing that we encountered earlier because of inability to afford duplicate copies of documents.

If one is to represent a relationship efficiently, they must be able to recognize different types of relationships and have appropriate nomenclature for relationships. Thus another component of the information storage and retrieval jargon rears its head. One common type of relationship among items can be represented as a tree structure with the items being nodes or branching points and lines connecting related items being the branches. Trees are adequate for representing any nested set of one-to-many relationships. Other classes of relationships are crossed rather than nested. A parent-child analogy is often used in describing relationships. In a simple network an item (child) can have more than one parent, but the parents must be of different logical types (e.g., mother and father are different types of parents). Simple networks can be decomposed into a set of overlapping (or intertwined) trees by an extension of the ideas of genealogy. In a complex network an item can have multiple parents of the same type. Thus, complex networks allow many-to-one as well as one-to-many relationships in both directions across two groups of items.

GIS systems are still quite new on the information processing scene and undergoing rapid evolution. A major dichotomy still exists between "grid" and "polygon" systems. Grid systems are based on subdivision of the area into a set of small square or rectangular cells. These cells serve as the "observational units" for storage, retrieval, and analysis. Grid systems tend to simplify analysis, but restrict resolution and require large amounts of storage. Polygon systems treat positional information via lines and points defined through spatial coordinates. They offer more flexibility in resolution and economy of storage, but make analysis rather complicated.

The ideal system would be capable of easily transforming back and forth between grid and polygon forms in order to achieve maximum economy in both processing and storage. Unfortunately, however, current systems tend to be better at handling either one form or the other. The situation is further complicated by the fact that a system which performs efficiently on one set of hardware will not necessarily be so efficient on a different set of hardware.

The U. S. Forest Service has developed a RIDS system with many desirable properties which operates efficiently on UNIVAC equipment. Unfortunately, this system is not operative on other types of computer hardware.

Geographic information systems produced by ESRI of Redlands, Calif. are being used by NASA in connection with LANDSAT remote sensing data and by the Maryland Dept. of State Planning as the basis for its MAGI system. At a recent workshop (June 1979) held by the Forest Service, however, the polygon handling (PIOS) component of these systems was found to have some inadequacies as compared with other systems.

Other systems examined during the Forest Service workshop were COMARC, LAND PACK, M & S, MOSS, and ODYSSEY. All of these systems had limitations of one sort or another, but they represent reasonable choices among existing alternatives.

7. Evolution of Information Systems

An immediate transition from haphazard handling of information to integrated information management is almost as difficult as converting a child into an instant adult. This analogy is also appropriate in other respects. There are often problems with "unbalanced" development. Just as the "whiz kid" is likely to have problems of social development, so also organizations may go "all out" for one aspect of information processing while completely ignoring other aspects. Also, each organization is an individual with respect to its information needs in much the same way that each child is an individual with respect to its educational needs. A well rounded result may not be possible without gradual development and accumulated experience.

In developing information systems, it is surprisingly easy to come up with the right tool for the wrong job. Therefore, it is extremely important that each organization monitor its own vital signs. A good point of beginning is a self analysis of information needs "from the ground up". Each person should give careful thought to the information needed for carrying out their role in the organization effectively. These notes should be collected at the next higher level, and so on up until an overview of information needs has been prepared for analysis by a specially appointed "task force" whose mission is to assess the possibilities for integrated and automated information management.

The sequence would then be reversed, with each information need being addressed at the highest level on which any communality of interest is shown.

In practice, the above ideal will seldom be followed completely, but the process can be self-adjusting. Initiatives for assessing information needs can be started at any level and carried upward until there is no interest at higher levels in coordination. Of course, a narrow base of interest will restrict the financial resources available for supporting information systems. In the long run, however, high enthusiasm among a small group for a limited system is better than an elaborate system that goes unused. Success on a limited scale will generate interest among colleagues which can lead to further integration and better systems in an evolutionary fashion.

As a final note of caution, however, an old system should never be discontinued until its replacement is installed and thoroughly tested.

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Chapter V - ECONOMIC AND SOCIAL ASSESSMENTS

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Chapter V - ECONOMIC AND SOCIAL ASSESSMENTS

A. INTRODUCTION

The application of economic and social assessments to State Forest Resources Planning can be a very complicated and costly task. At the risk of oversimplification, this Chapter in the "Guide" attempts to answer some basic questions including: Why bother to perform these types of assessments?; What do they mean and to whom?; What is the relationship between the Economic and Social Assessments?; What methodology or tools are available and can be understood and used by planners?; Where in the planning process should they be used?; Where do I go for more information concerning more sophisticated techniques? Jargon is held to a minimum. Only selected techniques which probably have the best application for Statewide assessments are covered. Philosophical discussions have been deleted. Every effort has been made to keep the explanations simple, examples clear, and relationships with specific tasks in the planning process identified. These are practical guides and tools for the non-economist, non-sociologist Forest Resource Planner.

B. PURPOSE

Why bother or who cares? To answer those questions necessitates a belief in the axiom that we manage forest resources not for the sake of the resources but for the ultimate well being of people. Therefore, the focus of economic and social assessments in Forest Resources Planning is the determination of the possible consequences of a land use decision or specific forest resource program on the everyday lives of people in the impacted area. "Virtually every dimension of the human environment, that is, our physical, psychological, social and economic well-being is related in some manner to the utilization of land."^{1/} So why bother? Because the results of such assessments provide the decision-maker with important information, along with environmental impacts, when forest land use decisions are made -- and the planner bears the responsibility for performing this staff work for the decision-maker. Who cares? Obviously, the decision-maker. A "better" decision can be made when the impacts of various forest resource programs can be displayed and tracked from the outputs to the economic consequences that follow to the social or people implications that ultimately occur (See Figure 1). Taxpayers also care. They're the people being who are affected by the programs and who are responsible for "footing the bill" on the forest resource program selected.

C. ECONOMIC ASSESSMENTS IN SFRP.

It is important to evaluate economic impacts before social impacts are described, since the economic effects usually trigger changes and create disruptions in the social fabric rather than the other way around. This social science called "economics" is probably one of the most misunderstood and feared disciplines, particularly when considered by the forester who is responsible for forest resource planning. In a general way we all know what economics is about. It is concerned with the production, distribution, and use of material goods and services.

^{1/} T.D. Berns, "The Assessment of Land Use Impacts," 1972.

FIGURE 1

RELATIONSHIP BETWEEN FOREST RESOURCES PROGRAMS
AND SOCIAL-ECONOMIC ASSESSMENTS



FOREST RESOURCE PROGRAM ACTIVITIES



GOODS AND SERVICES (outputs)
e.g. Available wood fiber increased by 30%



ECONOMIC IMPACTS
e.g. Gross state product increases 4%
with 800 additional jobs



SOCIAL (PEOPLE) CONSEQUENCES
e.g. More schools will be needed due to
decline in out migration

Economics makes three simple assumptions:

- Individual wants are the measuring rod in evaluating the demand for all goods and services.
- Goods and services are scarce relative to human wants.
- Since goods and services are scarce, individuals must choose between having various wants satisfied.

Goods and services are commonly referred to as outputs. In order to perform most economic assessments, one must determine what outputs are being produced from the current program, and at what costs. The costs of various activities within a forest resources program are generally well known. What and how much the activity produces in terms of outputs can be surprisingly difficult to determine. Often the "output" in some forest resource programs is also an input. For example, a management assist by a Service Forester is an input (a service provided) that may result in outputs both marketable (sawtimber marked for sale) and non-marketable (three miles of snowmobile trail that can accommodate 500 visitor days of recreation use each season). As we'll see later, estimating the value of the non-market outputs is necessary for use of several of the economic assessment tools.

Typical economic indicators measured in economic assessments include employment or jobs, employment mix or jobs by key forest resources output sectors (e.g., woods workers, primary wood manufacturing, etc.), wages or income, labor force characteristics, and outputs and their flows within the state's economy. The collection of economic tools that address these indicators has grown quite large, and some tools are very complex. Let's first look at where in the planning process some of the less complex tools can be used.

As a common point of reference, the planning process is defined as those phases and tasks described in Chapter II, Figure 3 of this Guide. Although economic assessments or analyses can be applied to every phase, two areas will be singled out as most important: issue identification and screening (Tasks 210-230) and alternatives (Task 450).

1. Classifying Issues

The planning process is issue driven and therefore the proper identification, screening, and classification of issues is crucial to a meaningful plan. Classifying issues using economic criteria not only provides a logical system for sorting, but also suggests some tools for subsequent analysis. Most issues can be separated into two categories: economic and non-economic. Some can be both. Economic issues are those that affect users and purchasers of forest resource outputs, have measurable dimensions such as production levels or quality, and are under the control of forest resource managers or are varied by management actions. For example, insufficient reforestation of cutover lands is an economic issue. Licensing of professional foresters is not.

Each economic issue can be further categorized as either efficiency, distributional (a.k.a. equity), or stability oriented.

Efficiency - oriented issues are of principal concern when conducting economic analyses. These issues relate largely to the manner in which scarce forest resources are allocated, how to use budgetary resources, which outputs should be produced, and which management practices should be applied. To further aid in identifying efficiency oriented issues, the following questions should be asked:

- Does the issue involve making choices about competitive uses of inputs or the production of outputs?
- Does the issue relate to increasing or decreasing demands for outputs or are the relative demands among outputs shifting?
- Can different management practices be used to provide the same or more outputs as current management, but at lower costs?
- Can more effective use be made of current budgetary resources?
- Are there marketing opportunities that could be capitalized?

Efficiency oriented issues are usually addressed by using investment analysis procedures such as benefit-cost analysis. This tool will be covered later in this chapter.

Distributional issues generally involve the manner in which various groups or communities are affected economically as a result of forest resource actions. They can involve who is or would be affected, or they can involve questions of equity (e.g. who pays - who benefits). Some questions to ask that will help identify distributional issues are:

- Who are the primary recipients or users of the forests' outputs?
- Do local lifestyles depend upon a particular distribution of forest outputs?
- Are the people that bear some of the costs different than the groups that receive the benefits?

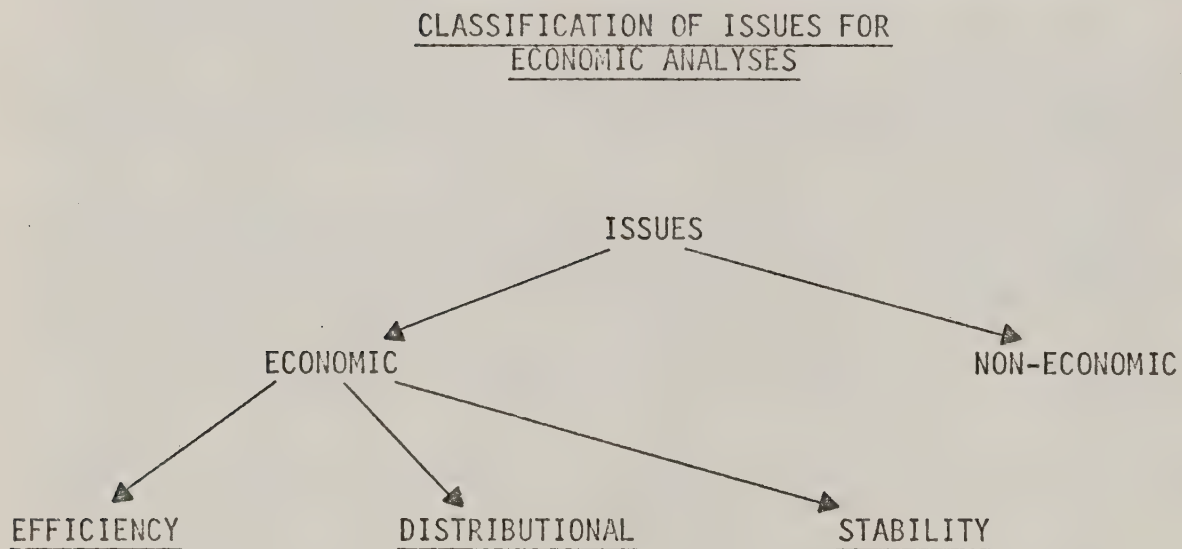
Distributional issues are usually addressed by economic analyses that use indicators such as income, employment, or occupations. An input-output model is one economic tool that can be used.

Stability issues involve questions of the dependency of a community upon forest resource actions or the rate at which economic change may take place as a result of alterations in forest resource actions. For example:

- Does the present State Forest Resources Program imply actions that may cause descriptive changes in the States employment?
- How much of a change can the State withstand before lifestyles are affected negatively?
- What is the dependency of the State upon the forest resource outputs?

Stability issues can be addressed by monitoring the rate of change in community and State employment by sectors. An economic base or I-0 model can accomplish that task. (See Figure 2)

FIGURE 2



2. Alternative Analysis

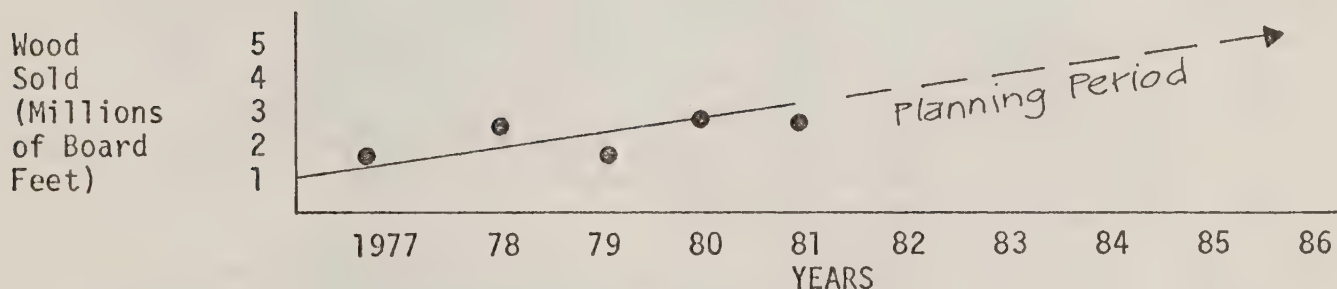
Properly comparing alternative forest resource programs so that publics and decision-makers can make an intelligent choice is, by far, the most important phase in the planning process for performing economic and social assessments. At a minimum, the following least cost economic information should be acquired and displayed for each alternative, including the current program.

a. Least Cost Analysis

- o Kinds and amounts of outputs for major activities within each program alternative.

Most of the major State Forestry Activities have well defined outputs. Simply checking the yearly accomplishment records should provide expected output levels from the current program alternative. If you are trying to predict output levels at the end of the planning period, plot the last five years of accomplishment outputs and extrapolate.

FIGURE 3



In this example, the current activities associated with producing or getting wood fiber to market have been slowly increasing. At this historical rate, nearly five million board feet of output will result by the end of the planning period.

For the other alternatives, estimated output levels can be determined by establishing the relationship between present inputs and outputs versus new inputs and outputs. For instance, if the current service forester program (10 foresters) leads to two million board feet reaching the market place and alternative #2 proposes to add five additional foresters, another one million board feet of output can be predicted.

In any case, estimates of future outputs from alternative programs should be performed by consulting the managers of these activities. This is, by far, the best source of expertise you have to establish these relationships and predict change. One specific method is to provide your program managers with a list of activities associated with each alternative and ask them to select those that will significantly impact the production of an output and estimate the percent change in a specific output by activities (e.g., no change, -10%, +5%, etc.) using the current program direction as a base.

o Total cost for implementing each alternative.

The current program alternative costs can be attained by sorting through historical budget data. Some of the State Accomplishment reporting systems for outputs also record the budget or costs associated with that output. If you're not that fortunate, go back to your program managers. You've already established which activities are inputs for specific outputs, so all you have to do now is sum the costs of these activities.

For the other alternatives, costs can be determined by using the current market values for the activities (inputs) that are being proposed. If alternative 2 is going to add five more service foresters, use the average current salary for a service forester. If Forest Fire Protection is going to be increased by using aerial detection, find out what the going rate per hour is and multiply that by the number of hours your program expert estimates will be needed. In fact, most of this cost data is usually already known by the program manager.

o Unit costs.

Just take the level of output you estimated for the program activities in each alternative and divide it into the total cost of producing it. For example, the fire control program in Alternative 3 should protect 50,000 acres of prime forest land. It will cost \$50,000 to implement. The unit cost for this Alternative is \$1.00 per acre.

Unit costs serve several purposes and include: variability between Alternatives, the tracking of cost increases or decreases over time, competitive standing relative to other producers of the same outputs, and their use in cost-effective analyses. Questions are raised: Why has the cost of TSI risen by 20% in one year? Why does the cost per acre of TSI exceed neighboring state costs? Does the value of the output exceed unit costs?

o Some indication of the role each alternative plays in the State's economy, (e.g. number of jobs supported, % contribution to the gross state product).

All States make estimates of yearly changes in the Gross State Product similar to the Federal Government's GNP estimates. Find out which part of your State government is responsible for that statistic (e.g., Department of Resources and Economic Development). Now take the market outputs you established earlier and multiply them by their market value and apply the appropriate multiplier $\frac{1}{1}$. The sum of these calculations is the alternatives contribution to the GSP. Dividing the GSP into that sum and multiplying by 100 will give you the percent of contribution to the GSP. That figure tells you (and the publics!) about how important - or not important - forest resources are to the State's economy and how alternative programs affect that contribution.

Here's an example. Let's say the TSI program in Alternative 2 leads to the production of an additional 10 million board feet of stumpage compared to no TSI program at all. The average market price for stumpage is \$50.00 per thousand board feet. Therefore, the value of this increased wood output is \$500,000. But, studies have showed that for every dollar of stumpage sold in your state about \$20 additional dollars in economic activity are generated from primary and secondary manufacturing, wholesaling, retailing, etc. Apply the 20 to 1 multiplier to the stumpage value to get an estimate of final demand or value added. In this case it's 10 million dollars. When all the identifiable outputs for Alternative 2 have been

1/ turn to Page V-18 for an explanation of multipliers

multiplied by their corresponding market value and the appropriate multiplier applied, the sum of these values is compared to the current gross state product. If the sum was \$200 million dollars and your state GSP was \$5 billion dollars, then Alternative 2's expected contribution to the total State GSP would be 4%.

If you want to display jobs, establish a relationship between outputs and employment. For instance, 1000 people were associated with the production of 40 million board feet of wood fiber. Therefore, one job was supported by about each 40 thousand board feet sold on the stump. Take the wood fiber output estimated for each alternative and divide by 40,000 board feet. Establish a similar relationship for the other major outputs and perform the same calculation. Then sum to get total jobs supported by each alternative. More detailed information on measuring these kinds of statewide impacts can be found in Section C.3. See Figure 4 for an example of how these data can be displayed in the plan.

Now for the good news. NA-S&PF has contracted for the development of an economic model that can perform these estimates of Statewide impacts. It is called SIS - Socio-economic Impact System. Pennsylvania, Wisconsin and Maine have already installed the system and many other states in NA will be doing the same in FY '82. If you're interested in this kind of technical assistance, contact NA-Forest Resource Planning.

FIGURE 4

EXAMPLE OF A LEAST COST ECONOMIC DISPLAY

<u>Environmental Impacts</u>	<u>ALTERNATIVE PROGRAMS</u>			
	A ₁	A ₂	A ₃	A ₄
1. -----	----	----	----	----
2. -----	----	----	----	----
3. -----	----	----	----	----
4. -----	----	----	----	----
 <u>Economic Impacts</u>				
1. Outputs	2 mm RVD's ^{1/} 10 mm BF ^{2/}	1 mm RVD's 20 mm BF	4 mm RVD's 5 mm BF	8 mm RVD's 3 mm BF
2. Total cost	\$1.1 mm	\$2.6 mm	\$5.2 mm	\$5.9 mm
3. Unit costs	\$.50/RVD \$.05/BF	\$.20/RVD \$.12/BF	\$1.20/RVD \$.08/BF	\$.70/RVD \$.10/BF
4. % G.S.P.	9%	12%	17%	21%
5. Jobs	980	1,230	2,600	2,850
 <u>Social Impacts</u>				
1. -----	----	----	----	----
2. -----	----	----	----	----
3. -----	----	----	----	----
4. -----	----	----	----	----

^{1/} Recreation Visitor Days
^{2/} Board Feet of Timber

b. More Complex Analyses

As mentioned before, efficiency issues can be resolved by investment analyses. Investment analyses try to respond to the questions: What am I (the taxpayer) getting for my money? Which alternative offers the best investment? Unlike the least cost economic assessment, investment analyses require identification of benefits (value of the outputs), including the non-market variety, such as a recreation visitor day in a Wilderness Area.

Absolute values are not critical when comparing alternatives. The relative difference between alternatives can be almost as important as knowing the absolute differences. For example, the value of a wilderness day may be in the eye of the beholder; but, as long as the same documented surrogate market values are used for each alternative, the relative difference between alternatives is still valid. The same argument applies to choosing the "correct" discount rate.

Now if you still want to go on, let's look at three common investment analyses.

1) Benefit-Cost

Benefit cost analysis is a procedure for quantifying and summarizing the costs and benefits of each alternative at the same point in time (usually the present) and comparing the two figures. Benefits should exceed costs for a worthwhile investment. The figure resulting from the analysis is normally referred to as the "B/C" ratio.

- o Discount rate. Since costs of the program alternatives (inputs) and benefits resulting from the actions (outputs times their value) normally occur at different points in time, they are not comparable. So all costs and benefits are discounted back through time to their present value. A discount rate percentage is used in the process. The discount rate represents the value of money through time and is subject to interpretation since it represents risk and uncertainty. For example, you've just won a bet for five dollars but, it can be paid at \$1.00 each year for five years. Inflation is zero. What did you really win? What would you accept as payment now? With the passage of time comes risks. You're debtor may go bankrupt. Nuclear war could destroy the earth. The risks and uncertainty are expressed as a percent called the discount rate. In this case at a 10% discount rate, you would accept \$3.79 if the bet was paid in full now.

- o Benefits. As you did for costs, determine when the outputs are expected during the planning horizon and the anticipated amounts. For market outputs such as wood fiber, use the current market price. For non-market outputs such as recreation and wildlife, use surrogate values. Surrogate values vary and are a source of great controversy, but all are based on an estimate of the consumer's Willingness to Pay (WTP). Without going into detail, some of the methods for estimating WTP are:

- Travel costs or distance. If a person travels 100 miles at a cost of \$20 to enjoy a day in a wilderness area, then the value of the wilderness visitor day must be at least \$20.
- Expenditure Approach. If snowmobilers spent \$10,000,000 last year on their sport, and 5 million visitor days of this kind of dispersed recreation was recorded in the State, then each visitor day is worth at least \$2.00.
- Surveys of consumers. Consumers of non-market outputs from forest resource programs, such as cross country skiers, are asked "what was the experience worth to you or how much are you willing to pay if a charge system was implemented?"

Another method for getting a substitute value for a non-market output is the use of the opportunity cost principle. If an alternative proposes to place forest land into quasi-wilderness, the value of the allocation is supposedly at least as much as the value of a forgone market output, like timber or minerals. Thus, if the area is estimated to contain \$100,000,000 in coal, the wilderness benefits should be worth at least that much.

It is suggested that the surrogate non-market values utilized in the 1980 RPA Assessment and Program be used for valuing intangible benefits. Figure 5 on page 14 depicts those values by output.

2) Present Net Worth

Present net worth (PNW) is simply the discounted benefits minus the discounted costs. \$10,000,000 in discounted benefits and \$4,000,000 in discounted costs means a present net worth of \$6,000,000, or a B/C ratio of 2.5. In comparing alternative programs, rank them in descending order of PNW. The opportunity cost (what is being given up) in dollar benefits, can be estimated by subtracting the present net worth of each alternative from the highest.

The Office of Management and Budget (OMB) uses a 10% rate. In the 1980 RPA assessment, 4% and 10% rates were used. These rates are in addition to the current inflation rate. Since the relative difference between alternatives is being examined, an "exact" rate is not necessary nor possible. Just use the same rate for each alternative.

- o Planning Horizon. The planning horizon is that time period in which most, if not all, of the costs and benefits will accrue. For example, a reforestation cost in the first year may not result in final harvest outputs for 100 years. Therefore, 100 years may be the planning horizon you want to consider.
- o Costs. Determine what the input costs are, when they'll probably occur during the planning horizon, and whether they're one time costs or recurring. Now discount them back through time to find their "present value." For example, fire suppression costs will likely occur each year of the planning horizon. A \$500,000 recurring cost, over 100 years, discounted back to present value at a discount rate of 10% is not \$50,000,000 (100 x \$500,000), but rather \$5,000,000.^{1/} The present worth of future fire suppression costs each year decreases as you move further through the planning horizon.

The background and details behind the arithmetic of interest is explained clearly in Davis's American Forest Management, Chapter 16. Compound interest formulas, compound interest tables, and how to use them are discussed in detail.

An example of a one-time cost, usually called a capital investment, is the purchase of fire suppression equipment. If the cost is expected in the 5th year, another type of interest table will give you the factor for determining its present value.

^{1/} Obtained from an interest table for determining the present worth of one dollar for N years. In this case, the value of one dollar for 100 years is \$9.999; thus the present value of \$500,000 paid every year for 100 years is \$500,000 x 9.999 or about \$5,000,000.

FIGURE 5

<u>ELEMENT AND OUTPUT DESCRIPTION</u>	<u>OUTPUT MEASURE</u>	<u>AVERAGE REGIONAL VALUE - DOLLARS PER UNIT</u>
Net Sediment Reduction	MAF ^{1/}	2,000.00
Dev. Recreation Use-Public	RVD ^{2/}	3.00
Dev. Recreation Use-Private	RVD	2.00
Dispersed Recreation Use	RVD	5.50
Visitor Info. Serv. Use	RVD	3.00
Wilderness Use	RVD	12.00
Big Game Use	RVD	10.50
Other Big Game	RVD	8.00
Non-game Use	RVD	7.25
Cold Water Fish Hab. Improv.	RVD	6.25
Inland Sport Fish CW/WW Use	RVD	5.25
Sport Fish Anadromous	RVD	19.50
Warm Water Intermed Hab. Improv.	RVD	4.25
Anadromous Sport Hab. Improv.	RVD	19.50
Waterfowl Use	RVD	8.00
Wildlife Habitat Improvement	RVD	8.00

^{1/} Thousand Acre Feet

^{2/} Recreation Visitor Day

Source: RPA Assessment, 1980.

FIGURE 6

ALTERNATIVE	DISCOUNTED BENEFITS	DISCOUNTED COSTS	B/C RATIO	PNW	OPPORTUNITY COST
C	35	20	1.75	15*	0
D	40	25	1.60	15*	0
E	44	30	1.47	14	1
B	28	15	1.87	13	2
A	20	10	2.00	10	5

In this example, displayed in Figure 6, Alternative A has the highest B/C ratio (2.00) and opportunity cost (5). Alternatives C & D share honors for the highest present net worth (15). Simply, A will give you the "best return" for each dollar invested, but alternative C & D will give you more dollars in total return, due partially to the fact that the total investment package is larger than A.

3) Internal Rate of Return

The Internal Rate of Return (IRR) is that rate of interest which yields a present net worth equal to zero; that is, the rate of interest which equates discounted costs and benefits. For example, a \$200 cost is incurred in Timber Stand Improvement (TSI) in year one and is expected to yield benefits of \$500 after 20 years. Should the investment be undertaken? What's the rate of return on this investment? To compute the average rate of interest earned by the investment over the period (the IRR), divide the expected benefits by the cost (500/200) and apply that number (2.5) to the appropriate interest table. That table is the same one used for determining the value of a one dollar cost (investment) compounded for N years at a specified interest rate. In this case, it is the interest rate you want to know so read across the row at 20 years until you reach an entry close to 2.5. The IRR is the corresponding interest rate at the top of the table. In this example, it is slightly less than 5%. Refer to Davis' Chapter if you're still having trouble.

Unlike B/C ratios or PNW, computing one IRR for each alternative being analyzed is extremely difficult due to the amount of individual program investments associated with each alternative. B/C's or PNW's are therefore recommended. There are computer programs available that will compute B/C's, NPW's, and IRR's for each alternative after the data has been properly determined and organized. The Forest Service version of such a program is called Invest III.

3. Measuring Regional/State Impacts

In the least cost economic assessment for comparing alternatives described earlier, it was strongly recommended that some attempt be made to estimate the impact of each forest resource program alternative on the State's economy. The simplest way to do this is to use the SIS Model previously mentioned. If you are uncomfortable with the Model, there is a way to estimate these impacts yourself. For the present management alternative, this can be accomplished by identifying which employment categories are associated with State Forest Resources Programs and using census data to add up the total number of jobs supported in those categories. Some states also have conversion factors that have been developed for jobs and market outputs. For example, nationwide, about one full time job is supported for every 40,000 board feet of timber output measured on the stump. Similar relationships exist for the recreation-tourism industry. To get a very rough conversion figure between jobs and outputs when nothing else is available:

- Break down the existing gross state product by major economic sectors: timber industry, recreation and tourism, etc.
- Divide the current number of jobs in those sectors into their respective portion of the GSP.
- Take this figure and use it to convert alternative program benefits to jobs supported.

For example, recreation and tourism associated with the State's Forest Resources contribute about 20% or \$100,000,000 to a State's 1/2 billion dollar economy (GSP). There are approximately 5,000 people employed in these sectors according to census figures. Therefore, for every \$20,000 in GSP, one job is supported. If an alternative program generates two million visitor days of recreation at \$5 per visitor day, then the \$10,000,000 of primary impacts should support about 500 jobs (\$10,000,000 divided by \$20,000). As we'll see in upcoming economic analyses, the actual contribution to Gross State Product, and therefore employment, will be much higher due to the multiplier effect.

Two models, economic base and input-output, are used most commonly to assess local or State impacts in terms of employment, income and tax effects. These types of assessments address the stability issues and to some degree the distributional issues. Assessing the impacts of forest land use alternative programs in terms of these economic indicators can be of great significance to the success of your planning efforts, particularly in terms of implementation funding. Elected officials readily relate to jobs and overall economic impacts as opposed to board feet or recreation visitor days. Because of the complexity of these analyses, they will be covered in general terms. For the non-economist, their application will probably require the services of an economist.

a. Economic Base

In this model, a distinction is drawn between economic sectors which export the bulk of their output outside the state (basic or export sectors) and those which primarily serve local or state needs (non-basic or service sectors). The simplest method to determine which sectors are basic or non-basic is employment. Those sectors where most of the employment occurs are basic while all the rest are non-basic.

In a state where the forest resource employment sectors are "non-basic", the ratio of basic to non-basic employment will establish the rate of employment growth. For example:

- 90,000 jobs in the State.
- 60,000 are basic (mining, manufacturing, and farming).
- 30,000 are non-basic, including the forest resource sectors.
- Therefore, the multiplier equals $90,000/60,000$ or 1.5. An expansion of 100 jobs in the basic sector will result in total employment of 150, or an additional 50 non-basic (service) jobs.

Determining basic employment generated by some key forest resource program activities can be performed as follows:

Timber - determine the average volume of wood harvested and processed per worker. Dividing this into the timber volume outputs for each alternative yields employment induced in these activities.

Recreation - estimate the average expenditure per visitor day by type of recreation. Then multiply by total annual projected visitor day use for each alternative to yield total anticipated expenditure. Dividing by expenditure required to generate a year of employment in retail trade and lodging then determines total basic employment induced by recreation activities.

The economic base model has obvious limitations, the largest being a two-sector economy. It also assumes that the multiplier is the same for each industry in the economic base. The following model lifts some of those limitations, but necessarily becomes much more complex.

b. Input-Output

Input-Output models (I-O) differ from economic base analysis in that they allowed the number of economic sectors to be increased from two sectors to many sectors. I-O conceives of the state's economy as consisting of some definite number of production activities. The output of each industry (including the industries associated with forest resources) goes partly to all or some of the other industries as intermediate product, and the rest goes to final demand, consisting usually of consumption expenditures, investment, exports, and government expenditure.

Transactions between each sector are arrayed in a matrix format. A multiplier for each industry can be estimated. I-O models require an extensive survey to compile all those data and establish the proper relationships between sectors. However, once the matrix has been established, various alternative forest resource programs can be assessed as to their impact on the State's economy in terms of employment changes by sector and changes in final demand. It is a powerful macro-economic analysis tool.

SIS is an I-O Model developed for RPA, under contract with the USDA Forest Service, by Regional Analytics, Santa Barbara, California. Each State Forest Resource Planner has been sent a copy of the user manual that explains its operation in detail. In addition, several States in NA have installed the SIS program on their own computer hardware.

c. The Multiplier Effect

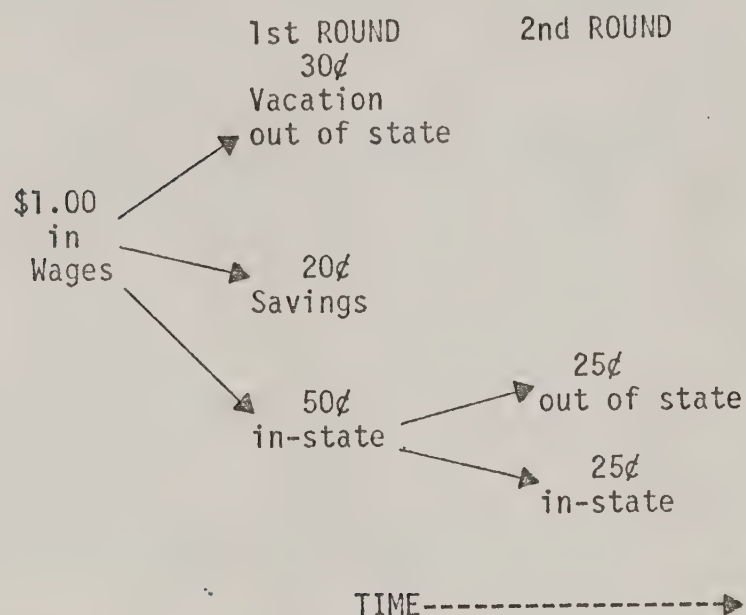
Both economic base and I-O models deal with the multiplier effect that investments have on local or state economies. In the case of forest resource industries such as timber, a dollar's worth of timber sold on the stump has been known to generate as much as 5 to 10 times that amount in Gross State Product. In the recreation industry multipliers are commonly found in the 1.5-2.5 range.

Knowing the multipliers for major industrial sectors associated with forest resource programs is important information to have when the primary goal of a program is to stimulate the State's economy. Basically, the longer existing or new investments stay inside the geographic area of concern (in this case the State), the more economic activity is generated. This phenomena is explained in the following example by following the path of one dollar in wages spent by a new worker.

Let's say the worker spends 50¢ locally, 30¢ outside the State during vacation (called leakage), and saves 20¢. From the 50¢ spent locally, merchants use 25¢ to purchase goods from suppliers outside the State (more leakage), while using the other 25¢ for local wages, utilities, taxes, and in-state purchases. This latter 25¢ is again re-spent until the leakage is complete. Thus a whole chain of secondary re-spending is set up by spending the first dollar, and in this example the tendency to consume locally was one half.

In each case the multiplier turns out to be the reciprocal of the leakage times the change in local expenditures, or in this case 2. Figure 7 describes this process.

FIGURE 7



Considerable work and expertise are required to track the linkages (transactions) between new expenditures and resulting secondary expansions of a state's economy. However, as much or more utility may be derived from understanding such linkages as is derived from the multipliers themselves. These linkages describe the detailed relationships in a State's economy, and knowing what they are enables you to predict consequences of future impacts of forestry related projects, such as a proposed pulpmill.

Many states have used I-O models to examine their economic "health", and multipliers for various forest resource sectors are readily available.

D. SOCIAL ASSESSMENTS IN SFRP

Social assessment is the determination of the possible consequences of a decision upon the everyday lives of people in the impacted area. In the development of an SFRP, social assessment should be an integral part of alternative program analysis for the same reasons that economic assessments are done to enable the decision-maker to make a better decision. It depends heavily on the quantitative data derived from the economic assessments and makes inferences from that and other information to descriptively describe various social implications of the alternatives. Typical social variables or descriptors include: population and settlement patterns, work/employment routines, community social support services, recreational routines, and communication linkages.

Hard numbers (quantitative data) do not necessarily tell a great deal about the quality of life or social well being of an area or State. Social impact assessment should include:

- Inventory of present social conditions
- Past/present relationships
- Exploration of possible futures
- Comparison or alternatives

1. Inventory of Present Social Conditions

The basis for any social impact assessment must be the inventory of present social conditions in the State. Some of the factors to inventory include:

Population and settlement patterns - The delineation of these patterns should begin with an exploration of the key historical trends which have been operative in creating the population base of the State. Identify which forces have operated to "push" and "pull" people away from or into the State. Current data on population and its locations is also critical along with some sense of the future

population predicted. Such demographic projections are easily obtainable from any number of State agencies. Once described, the population should be segmented in specific "publics." These may include minority and ethnic groups, key special interest groups, occupational types and others. The identification of "publics" is essential since uniform impacts or forest resource program decisions are most unlikely.

Work/employment - These routines elaborate how people earn a living. It is important to know how these employment opportunities relate to the forest resources industries in the State. Other factors of employment, such as its seasonal or full-time nature, generational cycles, and cultural identification with work are important elements to be defined.

Community support services - Defined broadly, they include such diverse institutions as government, churches, voluntary groups, etc; and they can indicate the degree to which populations seek to control or maintain a given environment.

Recreational routines - These routines describe the ways in which people spend their time when not working. Not only should the types and locations of activities be identified, but also the nature and orientation of these activities (individual or group, familial or associational, etc.).

Communication linkages - An analysis of how people transfer information should attempt to describe how communication is done, how frequently or infrequently it occurs, who communicates with whom, and the degree of formality. This step is fundamental to learning who the various "publics" are, how they can be contacted, and in what ways is information diffused and assimilated.

Other social data that should be considered as part of the inventory include: wage structure, labor supply, economic outputs and their flows, housing, transportation, etc.

Information Sources

Of primary help will be agencies such as State Planning Offices, Department of Economic Development, health and welfare agencies, and others. On a more localized level, regional and community planning agencies have accessed much data. A third source of data are academic institutions and their resource units. Nearly every State University operates an economic and/or government research unit, and many specialized sources of data -- rural development centers, agricultural and forest experiment stations, regional research institutes -- are also available.

2. Past/Present Relationships

Understanding the present and past is one basis for predicting future conditions. From the social inventory several key decisions will have to be made:

- o Which social variables or indicators should be used relative to the Forest Resource programs in your State?
- o How much of which types of social data will be needed?
- o How will information be communicated to target audiences?

Perhaps in a relatively simplified analysis, only population changes due to various forest resource programs will be tracked.

3. Exploration of Possible Futures

Now that social data has been examined and past and present relationships to forest resource programs determined, the actual assessment can begin. There are at least six relatively distinct ways of doing the social assessment: trend extension, population multiplier, local experts, citizen estimates, comparison community or state, and scenarios. Only two of these approaches will be covered in general terms. For details on all six approaches, see Social Impact Assessment: An Overview, Forest Service, USDA, June 1977.

a. Comparison Community (or State)

Locate a community, area, or state that approximates the characteristics of your state or the area you want to compare. Then compare similar forest resource program impacts and assume similar impacts in your own State. For example, when a new wood fired electric generating plant is proposed as an alternative to utilizing low quality hardwoods in a state, visiting a State that has undergone a similar event will tell you much about the probable effects. The major advantages of this method are that it has a sense of realism and offers clues to a variety of mitigating measures.

- b. Scenarios - This assessment approach involves writing a "scenario" or "alternative future" that describes what the community or region or state will be like at some future point. It is somewhat similar to the comparison approach in that the specifics of the future relate to more detailed estimates of impacts, such as those based on population multipliers and trend projections. Use of scenarios is most likely to give a sense of realism.

4. Comparison of Alternatives

The end product of the previous three steps is a prediction of the social impacts of the forest resource program alternatives presented in narrative form. Prediction involves evaluation and judgement probably best attained in a group effort. Roundtable discussions and scenarios are two possibilities. The results can be displayed in a matrix similar to the environmental and economic impacts as shown in Figure 8.

FIGURE 8

SOCIAL IMPACT VARIABLE	ALTERNATIVES			
	A	B	C	D
Population	Will decline dramatically	Will remain stable	Will grow slowly	Will grow rapidly
Taxes	+3%	-6%	+8%	-1%
Need for schools	Will decline with population	Will remain the same	Child population will increase slightly	More schools will be needed

E. ADDITIONAL ECONOMIC-SOCIAL ASSESSMENT PROCEDURES

Many of the more sophisticated procedures for performing economic-social assessments have not been mentioned. This section will provide a brief explanation of what some of them are, where they can be used in the planning process, and specific references should you want to learn more. All are econometric in nature meaning they employ statistical and mathematical routines. Computer capability is also necessary to perform practically all of these analyses.

1. Supply and Demand Analysis

Supply and demand analysis is commonly used to determine market prices and usage levels of resources. It is used quite readily in the study of market equilibrium systems in the field of forestry -- namely timber. The 1980 RPA Program used a simulation econometric supply and demand analysis for the long range timber outlook. It's known as the Haynes-Adams model.

Since most states must deal with the issue of increasing demands on a relatively shrinking supply of available timber, performing some kind of S&D analysis is important. A typical analysis (a very basic gap analysis) now consists of extrapolating "demand" (it is really consumption that's being projected) and expected supplies, looking at the difference (gap) between the two, and making a statement that more wood has to be made available. Although the goal to resolve this issue is admirable, often the gap forecasted is so large that is can't be closed during the planning period. The question then is "How fast will the price of timber increase?" The use of S&D models

provide anticipated future price and quantity information for various forest products. The bad news is the data input requirements of supply and demand analysis are considerable. Data needed for the analysis (they're called exogenous variables) typically include number of housing starts, changes in population levels, gross national (State) product, initial timber inventories, growth rates, availability rates by ownership in supply regions, and transportation costs. These data must also be available in time series -- usually 10 consecutive years for each exogenous variable. The good news is the output from a properly structured model with clean data. Information is generated on the levels of harvest, timber growth, inventory adjustment in supply regions, product outputs, and equilibrium prices and quantities of each product.

"Supply and demand analysis provides an opportunity to explore the impacts of various programs and policies. However, there is no guarantee that the time and money spent on a project involving such a method of analysis can produce meaningful results."^{1/}

Specific references for more information on S&D analysis include:

- a. Adams, F.G. and J. Blackwell. 1973. An econometric model of the US Forest Products Industry. Forest Science, 19(2):82-96.
- b. *Adams, D.M. and R.W. Haynes. 1979. The 1980 Softwood Timber Assessment Model: Structure, Projections, and Policy Simulation, USDA, Forest Service, Pacific Northwest Forest and Range Experiment Station, Portland, OR. 136p.
- c. McKillip, W. 1974. Economic Impacts of an Intensified Timber Management Program. USDA Forest Service, Research Paper WO-23, Berkeley, CA. 16p.

2. Regression Analysis

Regression Analysis is a mathematical means of predicting multivariate problems. Usually such predictions require a formula be found (normally by trial and error) which relates the dependent variable, whose value is to be predicted, to several independent variables. If the independent or explanatory variables are highly related to what you want to predict, knowing why they'll be at some future point in time will permit you to "predict the value of the dependent variable. For instance, you may be able to predict the amount of snowmobiling on State forested lands by the year 2000 if you have good time series data on the cost of gas, disposable income, retail sales of snow machines, etc.

References include:

- a. Crow, T.R. 1971. Estimation of Biomass in an Even-aged Stand: Regression and "Mean Tree" Techniques. Maine Agricultural Experiment Station, Miscellaneous Report 132, Orono, ME. pp 35-48.

^{1/} Miller and Mahbooji, November 1979. Economic Impact Assessment Tools for Analysis of Forest Resources.

* Used for 1980 RPA analysis.

3. Simulation Analysis

Simulation analysis involves the study of a real world system through building a model which allows one or more of the parameters associated with the system to change over time. Simulation modeling cannot give you an exact solution to a problem; the best simulation analysis can achieve is an inexact, approximate solution after many iterations. It is a potent tool, and can be extremely complex. Some references include:

- a. Adams, D. M. 1972. The Impact of Changes in Federal Timber Sales Policies on the Douglas-Fir Region Forest Economy: An Economic Simulation. University of California, School of Forestry, Ph.D. Dissertation, Berkeley, CA. 127p.
- b. Adams, D.M., R.W. Haynes, and D.R. Darr. 1977. A Welfare Analysis of Long-Term Forest Products Price Stabilization. American Journal of Agricultural Economics, 59(4): 662-673.
- c. Jameson, D.A., L.S. Rollin, and W.L. Stewart. 1977. REFLOW - Regional Economic Resource Simulation Model. Colorado State University, Department of Range Science, Range Science Series No. 24. Ft. Collins, CO. 98p.

4. Operations Research Techniques (OR)

Various kinds of "OR" used in conjunction with techniques such as Input-Output or economic base analysis can provide added credibility to the results. These techniques are commonly used in forestry planning, programming, and budgeting. Some of the OR techniques include: linear programming, goal programming, parametric linear programming, dynamic programming, and Markov chain theory. FORPLAN is a linear programming model that is being utilized to assist in the preparation of National Forest Land Management plans currently being prepared.

Some references include:

- a. Benninghoff, B. and C. Ohlander. 1978. Integrating timber Harvest Scheduling -- Economics and Environmental Quality. Journal of Forestry, 76 (6): 348-351.
- b. Bottom, K.E. and E.T. Bartlett. 1975. Resource Allocation through Goal Programming. Journal of Range Management, 28(6):442-447.
- c. Chang, S.J. 1975. A Test of Goal Programming on the Kilkenny Management Unit. Harvard University, Department of Forest Science, M.S. Thesis, Petersham, MA. 96p.
- d. O'Connell, P.F. 1971. Economic Modeling in Natural Resource Planning. In Proceedings of the 14th Arizona Watershed Symposium, Ft. Collins, CO. pp. 31-30.

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1. Convery, Frank J. (1977). Some Applications of Economics in Public Forest Land Use Planning.
2. Lapping, M.B. (1979). Socioeconomic Impact Assessment: A Handbook.
3. Livengood, K. (1980). Guides for Economic Analysis of State Level Forest Resource Planning (Draft).
4. Miller, C.A. and Mahlooji, H. (1979). Economic Impact Assessment tools for Analysis of Forest Resources - A Bibliography.
5. (1980). Interim Directive No. 7, USDA Forest Service, Economic and Social Analysis, FSM 1920.
6. (1980). FSH 1909.12, Chapter 560 (Draft). Economic Analysis for Forest Planning.
7. (1977). USDA Forest Service. Social Impact Assessment: An Overview.

Chapter VI - Integration With Other Planning

The Statewide Forest Resources Plan should provide the basis for forestry input to all other planning where forest resources are to be impacted within the state. It is unlikely all informational needs can be met by the initial plan or even subsequent updates. This is a continuing process. As new needs are identified, the Statewide Forest Resources Plan will be re-evaluated and new information generated within the framework of the overall plan.

A. Forest Service

1. RPA (Forest and Rangeland Renewable Resources Planning Act of 1974)

The RPA directs the Forest Service to make a Renewable Resources Assessment no later than December 31, 1975, to be updated during 1979 and each tenth year thereafter. This Assessment covers all natural resources of the United States. The Forest Service was also directed to prepare a Renewable Resources Program discussing alternatives for the protection, management and development of the National Forest System; for Cooperative Forest Service programs; and for Research. The program was to be prepared not later than December 31, 1975, to cover the four year period beginning October 1, 1976, and updated no later than during the first half of the fiscal year ending September 30, 1979, and the first half of each fifth fiscal year thereafter. Each program covers at least the four fiscal decades beginning next after each updating.

The RPA was amended by the NFMA, National Forest Management Act of 1976. This Act and subsequent regulations published in the Federal Register on September 19, 1979, did not change the requirements for developing and maintaining the Assessment nor for developing 5-year programs. It did, however, attempt to define more precisely how input would be developed for the program. It established a Regional Planning Process to develop a coordinated program for all three arms of the Forest Service; National Forest Systems, State and Private Forestry and Research. A Regional Plan covers an administrative region of the Forest Service such as the Eastern Region whose boundaries coincide with those for the Northeastern Area for State and Private Forestry.

The general way in which the Statewide Forest Resources Plan fits into this process is illustrated and described in Exhibit 4, Forest Service Model for Management/State Grant Process. The exact details are being developed and will be incorporated in this Guide as soon as they are available.

The NFMA regulations also require each National Forest to prepare a Forest Plan. Close cooperation between preparation of a Statewide Forest Resources Plan and the National Forest Planning effort is needed to ensure compatibility.

2. Program/Budget (Grants to States)

The Forest Service Program/Budget process is built on a common set of definitions for information items essential to Forest Service management. These definitions are found in the Management Information Handbook (MIH). All input, including state input for federal grant programs, must be made in terms of the codes, descriptions and outputs found in this handbook. (See Exhibit 5, State Forest Resources Plan Input to Forest Service Program Budget.) Specific budget instructions for states are prepared annually and sent to each state. Current year financial advice and instructions for preparing grant applications are found in the Financial Planning Guide, Northeastern Area States, State and Private Forestry.

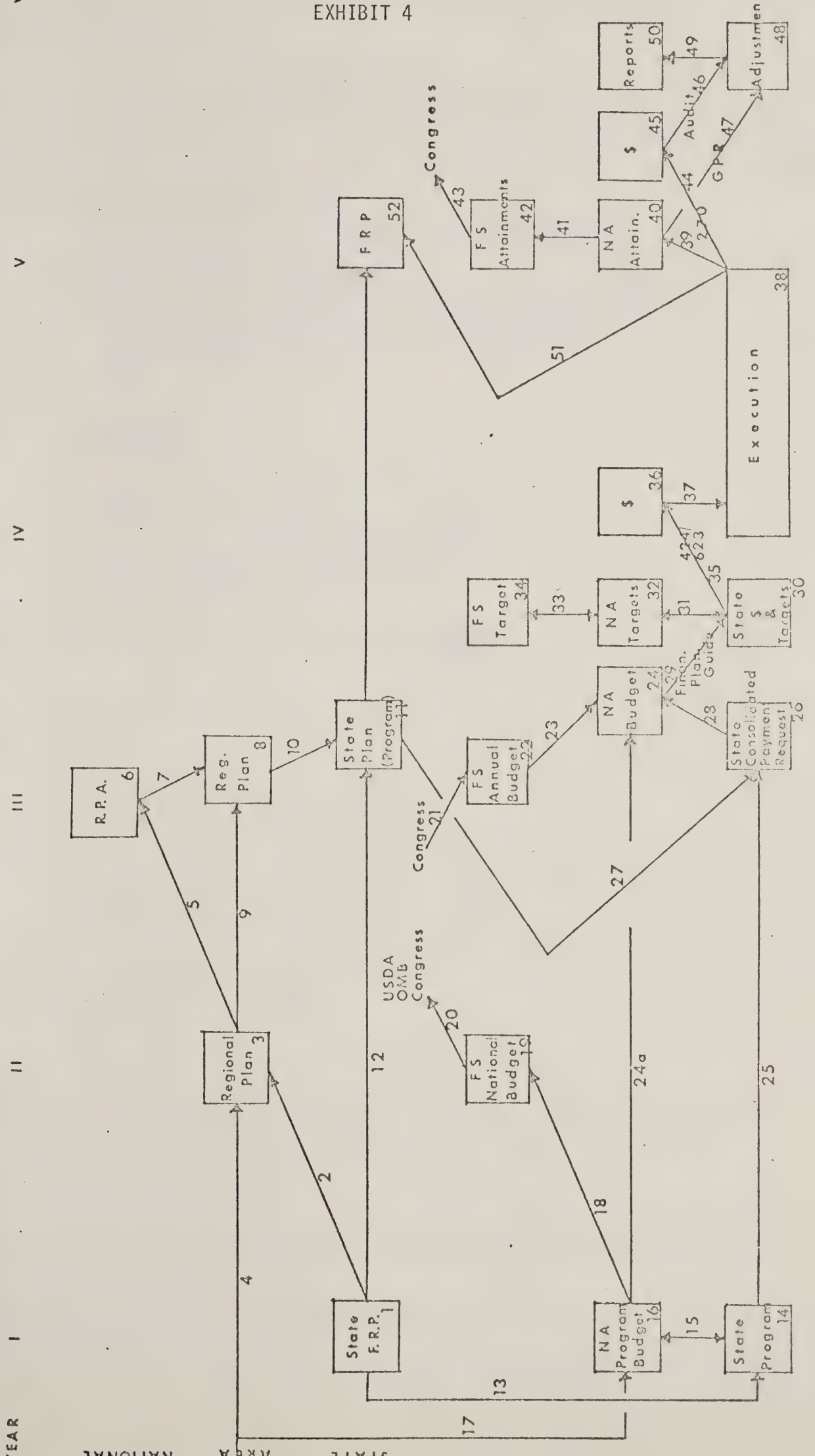
Section 9 of the Cooperative Forestry Assistance Act of 1978, enables states to request consolidated payments for work performed under the Act. Instructions for requesting consolidated payments are found in Exhibit 6, March 28, 1979, letter to State Foresters from Philip L. Thornton, Deputy Chief, State and Private Forestry.

B. Other Federal

Many other federal agencies carry on planning activities within states which affect forest resources. It is important to identify these efforts and the responsible agencies early in the planning process to ensure coordination during preparation of the Statewide Forest Resources Plan. After the first Plan is completed and during subsequent updates, it should guide forest resources input to these other planning efforts. Examples of these other efforts are: Soil and Water Resource Conservation Act (RCA) Rural Conservation and Development (RC&D), Small Watershed Act (PL 566), River Basin Studies, etc.

MODEL FOR MGT. / STATE GRANT PROCESS

FEAR



FOREST SERVICE
MODEL FOR MANAGEMENT/STATE GRANT PROCESS

- * 1. State Forest Resource Plan
 - a. Based on Assessment of State Forest resources
 - b. Issue oriented - State issues
 - c. Program covers all State and Coop activities in Forestry
 - d. 5 years for coop activities - shows \$ and outputs
 - e. Program is reviewed and adjusted annually
- 2. State FRP's form basis for:
- 3. Regional Plan
 - a. Coordinating document for all Forest Service programs (NFS, S&PF, Research)
 - b. Required by National Forest Management Act (NFMA)
 - c. Issue oriented - Regional Issues
 - d. Forest Service Programs only
- 4. Regional plans are updated every 5 years
- 5. Regional plans form the basis for:
- 6. R.P.A.
 - a. Required by Resources Planning Act
 - b. Issue oriented - National Issues
 - c. Assessment of all forest and range lands every 10 years
 - d. Forest Service programs only - updated every 5 years
 - e. Recommended program sent by President to Congress
- 7. Adjustments are made to Program portion of the Regional Plan based on recommended RPA program.
- 8. Regional Plan as adjusted
- 9. Issues & Assessment remain the same
- 10. Program portions of State FRP are adjusted based on recommended RPA Program and revised Regional Plan. Coop program only.
- * 11. State Forest Resource Plan as adjusted
- 12. State FRP remains unchanged except for program adjustments to Coop activities.
- 13. Coop program portion of State FRP is the same as:

- * 14. State Program Budget Request
 - a. \$ and outputs for Coop. program activities
- 15. Aggregate of State submissions becomes:
- 16. NA Program Budget Request
- 17. Program Budget is also based on Regional Plan
- 18. Several \$/activity levels are submitted to Washington Office for inclusion in:
- 19. Forest Service Annual Budget Request
- 20. Forest Service budget submitted to USDA, OMB, and Congress
- 21. Congress passes Appropriation Bills which contain:
- 22. Forest Service Annual Budget
- 23. Chief's Financial Planning Advice sent to NA
- 24. NA Annual Budget - \$ and outputs
- 24a. Annual budget based on Program Budget request as modified by Congress
- 25. State Program Budget request (#14) becomes:
- * 26. State Consolidated Payment Request (CPR)
 - 27. Modifications are made to CPR based on revised State FRP
 - 28. CPR's modify:
 - 29. State Financial Planning Guide which contains:
- * 30. State \$ Allotments and Targets
 - 31. Targets are negotiated between States and NA resulting in:
 - 32. NA Targets
 - 33. NA negotiates Targets with WO resulting in
 - 34. Forest Service Targets

35. States request \$ using 424/623
36. Dollars:
37. Are sent to States
- * 38. States execute Coop programs
39. States report attainments/accomplishments resulting in
40. NA attainments
41. NA attainments reported to WO resulting in:
42. Forest Service Attainments
43. Forest Service reports attainments to Congress
44. States request payments using SF 270
45. Dollars Paid to States
46. Audits of coop programs
47. General Program Reviews/Functional reviews of Coop programs
- * 48. Adjustments to procedures made by States
49. Adjustments are sent to NA in the form of:
50. Reports
51. Based on actual accomplishments, adjustments are made to the program portion of the:
- * 52. State FRP

State Forest Resource Plan Input
to Forest Service Program Budget

EXHIBIT 5

PL 95-313 Program		Rural Forestry Assistance (Sec. 5)			Data Needs	
T/A Multi-Resource Forestry Management						
M/H Code (FSH 1309.11)	Activity, Output, or Effect	Unit of Measure				
A18	Technical Assistance for Dispersed Recreation	Thousands of Acres	Number of Units	Non-Federal (M/B)	Federal (M/F)	Total (M/S)
C11	Technical Assistance for Wildlife Habitat Improvement	Thousands of Acres				
D09	Technical Assistance for Forage Production	Thousands of Acres				
E14	Technical Assistance for Timber Management	Thousands of Cubic Feet				
E21	Reforestation (New Cost Share)	Thousands of Acres				
E24	TSI Precommercial Thinning (New Cost Share)	Thousands of Acres				
F05	Water Resource Improvement	Thousands of Acres				
J25	Forest Land Management Plans	Thousands of Acres				
E14	Technical Assistance to Loggers and Processors	Assists				
W73	Improved Utilization of Wood #1	Thousands of Cubic Feet				
E18	Cooperative Seedling Production	Millions of Seedlings				
E31	Nursery Improvement and Expansion	Millions of Seedlings				
E20	Assistance to States for Tree Improvement	Pounds of Seed				
E27	Genetic Tree Improvement Establishment	Acres				

	P.L. 95-313 Program	M.I.H. Code (FSH 1309.11)	Activity, Output, or Effect	Unit of Measure	Data Needs			
					Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)
Rural Fire Prevention and Control (Sec. 7)	Insect and Disease Control (Sec. 5)	P34	Insect and Disease Surveys and Technical Assistance	Millions of Acres Surveyed				
Rural Fire Prevention and Control (Sec. 7)	Urban Forestry Assistance (Sec. 6)	H11	Technical Assistance for Urban and Community Forestry	Urban Areas				
Rural Fire Prevention and Control (Sec. 7)		P29	Rural Community Fire Protection	Applications Approved				
		Z92	Fire Occurrence -Man Caused (Protected Area Only)	Thousands of Fires				
		Z93	Acres Protected	Millions of Acres				
		Z94	Cooperative Fire Loss (Protected Area Only)	Thousands of Acres Burned				
Management, Planning, and Tech. Impl. (Sec. 2)		J27	Cooperative Forest Resource Planning	Millions of Acres				
		E21	Reforestation	Thousands of Acres				
		E24	T&I Precommercial Thinning	Thousands of Acres				
		E21	Reforestation	Thousands of Acres				
ACP		E24	T&I Precommercial Thinning	Thousands of Acres				

Rural Forestry Assistance (Section 3)
(T/A Multi-Resource Forestry Management)

- A18 COOPERATIVE TECHNICAL ASSISTANCE FOR DISPERSED RECREATION (S&P) ACRES
 Furnishing recreation related technical help in the development of plans that result in modification of silvicultural practices, or maintenance of an area of forest land for recreational purposes on private, county, or State owned land..
- C11 COOPERATIVE TECHNICAL ASSISTANCE--WILDLIFE HABITAT IMPROVEMENT (S&P) ACRES
 Assistance in the development of plans, construction, silvicultural practices, or improvement of forest land for wildlife habitat. Include area that received actual physical treatment.
- C09 COOPERATIVE TECHNICAL ASSISTANCE FOR FORAGE PRODUCTION (S&P) ACRES
 Assistance that leads to an increase in the yield or quality of forage on State and private lands for domestic livestock use through development and implementation of improved management practices. Includes elimination of grazing on unsuitable range or to achieve management objectives.
- E19 T/A TIMBER MANAGEMENT (S&P) MCF
 Assistance in the layout of sale areas and preparation of timber for sale including advice in sale contracts. Also, assistance for reforestation and TSI activities will be included in this activity. The unit of measure is thousand cubic feet of timber.
- E21 REFORESTATION--PLANTING, SEEDLING AND SITE PREPARATION FOR NATURAL REGENERATION (S&P) ACRES
 Setting out seedlings, transplants or cuttings, or scattering or placement of seed over a designated area for the establishment of a forest stand; or, the removal of unwanted vegetation, slash, stumps, and roots before natural seed fall (includes hand, mechanical, and prescribed burning treatments).
- E24 TSI PRECOMMERCIAL THINNING (S&P) ACRES
 The felling, deadening, or removal of trees in a young stand in order primarily to accelerate diameter increment on the remaining stems and maintain a specific stocking or stand density range and also by suitable selection to improve the vigor and quality of the trees that remain. Included is the treatment or disposal of the resulting slash.
- F05 WATER RESOURCE IMPROVEMENT ACRES
 Activities carried out on a watershed to improve the quantity, quality, or timing of waterflow. Activities include channel stabilization, sediment retention structures, water yield improvement, flow timing, and other projects designed to reduce sediment or improve water quality, quantity, or timing. Unit of measure is treated acres.
- J25 FOREST LAND MANAGEMENT PLANS (S&P) ACRES
 Includes the preparation of written evaluations and recommendations meeting a State's definition of a management plan for single ownerships. The plans deal with one, several, or all forest resources and activities. The purpose is to provide guidance to the forest landowner or manager in developing, protecting, and managing forest land. The unit of measure for this activity is the number of acres covered by the plan.

Rural Forestry Assistance (Section 3)
(Improved Utilization of Wood)

- E14 TECHNICAL ASSISTANCE TO LOGGERS AND PROCESSORS (S&P) ASSISTS
 This is the number of all loggers and processors who receive assistance in harvesting, processing, drying or marketing. Activity includes all T/A for protection of wood in use and storage. The unit of measure is the number of loggers and processors assisted.
- W73 IMPROVED UTILIZATION OF WOOD (S&P) MCF
 The increased amount of wood that is annually made available for utilization due to Federal and State cooperative programs: harvesting improvements, wood processing, drying improvement, etc.

Rural Forestry Assistance (Section 3)
(Seedling Production and Nursery Improvement)

- E18 COOP SEEDLING PRODUCTION (S&P)
 Seed testing, and Forest Tree Nursery management activities. The unit of measure is millions of seedlings produced.
- E31 NURSERY IMPROVEMENT AND EXPANSION (S&P) SEEDLINGS
 All construction-reconstruction, installation of additional equipment, and increase in seed stores to be financed to support an increased level of seedling production for reforestation. Unit of measure is million of seedlings of added capacity.
- Rural Forestry Assistance (Section 3)
(Improved Tree Seed)
- E20 ASSISTANCE TO STATES FOR TREE IMPROVEMENT (S&P) POUNDS
 Tree improvement activities and reforestation related activities on non-Federal forest lands. The unit of measure is pounds of improved seed.
- E27 GENETIC TREE IMPROVEMENT ESTABLISHMENT (S&P) SEEDS
 The activity includes work process that will result in future yield increases resulting from the availability of genetical, superior planting stock or seed such as establishment of improved seed production areas or seed orchards. Unit of measure is acres of seed production, seed orchard, and progeny testing areas established.

Insect and Disease Control (Section 5)

<u>P34</u>	<u>INSECT & DISEASE MANAGEMENT - SURVEYS & TECHNICAL ASSISTANCE (S&P)</u>	<u>ACRES</u>
	Planning, directing, and coordinating an insect and disease management program on National Forest System and other Federal lands and technical assistance to State forestry organizations. The surveys are for detection and evaluation of insects, diseases, and environmental pollutants which affect forest vegetation. Technical assistance includes training of Federal and State forestry personnel to properly identify insect and disease outbreaks and prescribe proper treatments, environmental coordination, certification and training of pesticide applicators, management plan inputs, and technology transfer and knowledge utilization.	

Rural Fire Prevention and Control (Section 7)

<u>F29</u>	<u>RURAL COMMUNITY FIRE PROTECTION (S&P)</u>	<u>APPLI- CATIONS APPROVED</u>
	Total number of approved applications in assisting local communities in organizing, training, and/or obtaining fire control equipment.	
<u>Z92</u>	<u>FIRE OCCURRENCE - MAN CAUSED (NFS) (S&P)</u>	<u>FIPES</u>
	The measure of the total number of man-caused fires on protected lands. This is a measure of fire prevention activities. It is compared with the current 5-year average to determine activity effectiveness.	
<u>Z93</u>	<u>ACRES PROTECTED (S&P)</u>	<u>ACRES</u>
	This is a measure of the acres qualifying for protection under Section 7 of P.L. 95-313 that actually receive protection. Unit of measure is acres counted at the end of the calendar year.	
<u>Z94</u>	<u>COOPERATIVE FIRE LOSS (S&P)</u>	<u>ACRES BURNED</u>
	The measure of total acres burned on protected lands. This is a measure of overall fire suppression activity. It is compared with the current 5-year average to determine activity effectiveness.	

Urban Forestry Assistance (Section 6)

<u>H11</u>	<u>TECHNICAL ASSISTANCE - URBAN AND COMMUNITY FORESTRY (S&P)</u>	<u>URBAN AREAS</u>
	Assistance provided for projects leading to a final product, such as an open space plan, a program for utilizing wood fiber rather than burning or dumping useable wood in city landfills, developing an educational program, drafting a tree ordinance, carrying out a street tree survey, evaluating a pest problem, constructing a slide show, promoting a site plan with a developer, etc. Depending on type of project, it may be a single community, multi-county or Statewide. The unit of measure is the number of urban areas assisted.	

Management Assistance, Planning Assistance, and Technology Implementation (Section 8)

<u>J27</u>	<u>COOPERATIVE FOREST RESOURCE PLANNING (S&P)</u>	<u>ACRES</u>
	Includes plans developed with assistance from Forest Service personnel and/or Federal forestry funds. Activity includes cooperative work with State forestry agencies to develop State and multi-county resource plans. Examples are: State Forestry (Range) Resource Plans, or multi-owner multi-agency plans to meet Coastal Zone Management; Water Quality Planning (PL 92-500); HUD 701; Surface Mine Control and Reclamation plans; and similar planning efforts. This includes an analysis of the current and projected forest land resource situation and development of long-range alternatives for meeting future resource needs.	

EXHIBIT 6

3000

March 28, 1979



TO: STATE FORESTERS

Gentlemen:

The Committee of State Foresters met earlier this month to consider implementation of P.L. 95-313. One key topic was the procedure to use to guide States choosing to request consolidated payments (Section 9). Some States are contemplating making such requests to consolidate FY 1980 payments. The purpose of this letter is to give interim guidance pending development of appropriate Forest Service Manual direction and regulations.

The State Forest Resources Program referred to in Sec. 9(b) should serve several purposes in addition to providing a basis for consolidated payments. Obviously, such a program should be designed primarily to meet State Forester needs and objectives. It should also be a key source of input to the RPA planning process.

However, for the purpose of requesting consolidated payments the State program should include as a minimum:

A. Narrative:

1. A statement of the State Forestry organization's mission, role and authorities relating to those activities encompassed by P.L. 95-313. Significant inter-agency coordination or interfaces at the State level should be included.
2. A brief assessment of the forestry situation in the State. Ideally this should be based in part on (or at least not be in conflict with) the data developed for and presented in the RPA Assessment. The State assessment may be much more detailed in content and wider in scope than the RPA Assessment. As a minimum, the State assessment should relate to and provide a rationale for the cooperative programs and activities for which the State plans to seek funding through P.L. 95-313. Basic assumptions and trend projections may be particularly useful.

3. An outline of primary goals and objectives. This should give a long-range (10 years or more) direction to the State's participation in the programs encompassed by P.L. 95-313. This may take the form of problem identification, analysis of issues, broad priorities, etc. Some discussion of alternatives considered, public involvement, data gaps, research needs, and State policy direction may be useful.

4. A general description of each of the programs and activities that the State plans to include within the scope of P.L. 95-313. This should include any special or unusual implementation features or arrangements--such as contracting the work to other State agencies, consultants, etc.

Supporting Data:

A multi-year implementation schedule is a key element of the program. We have screened the data needs to a minimum of 21 activities and outputs. In accord with Section 9(a) of P.L. 95-313, the Forestry Incentives Program (FIP) shall not be included under consolidated payments. The attached table and definitions are needed to provide a standard format. A similar table will be used, we expect, for the next RPA effort and will focus on 1986-90 in particular. If you can suggest ways to improve the format or content of the draft table, please do so. To repeat, these are the minimum data needs of the Forest Service. Each State may choose to add activities or data to this basic framework. We expect to be able to improve the definitions, etc., to be used for FY 1981 and beyond.

Supporting data for consolidated payment requests are required for a minimum of three fiscal years--for example, 1980, 81, and 82. These estimates will not be binding on the State, nor on the Forest Service. They can be updated annually as needed.


We recognize that States electing to request consolidated payments starting in FY 1980 may not have enough time to complete a detailed, in-depth, State Forest Resources Program. We request that those States notify the Forest Service (Regional Forester or Area Director) of their intent as soon as possible. For this initial effort we will need, by July 1, 1979, the narrative, described in A. above, that is as complete as possible and supporting data shown on the attached table.

States requesting and receiving consolidated payments in FY 1980 on the basis of minimal narratives and supporting data will be expected to elaborate and improve on their program presentation in subsequent years. More detailed guidance for such planning will be developed in the next few months. However, the intent of the Committee of State Foresters and the Forest Service is to keep requirements to a minimum.

There will be opportunities to discuss State Forest Resource planning, consolidated payments and other aspects of implementation of P.L. 95-313 at your regional meetings in the next few months. In the meantime, your Area Director or Regional Forester and their staffs are available, at your request, to assist in preparation of the narrative and the tabular data needed if you choose to request consolidated payments in FY 1980.

There is an obvious need to coordinate the long range, multi-year RPA data and the short range or annual data needed for consolidated payments. Our Areas and Regions will soon have some work sheets to help you achieve that coordination during development of your State Forest Resources Program. We urge you to work with them in that regard whether or not you plan to request consolidated payments for FY 1980.

Sincerely,



PHILIP L. THORNTON
Deputy Chief, S&PF

Enclosures

Supporting Data for Consolidated Payment Request Under P.L. 95-313

FY 1980

DRAFT
3/28/79

State: _____ Date Prepared: _____ Prepared By: _____

Activity, Output, or Effect	MTH Code (FSH 1309.11)	P.L. 95-313 Program	Unit of Measure	FY 1978 (Actual)				FY 1980 (Planned)				FY 1981 (Estimate)				FY 1982 (Estimate)				FY 1983 (Estimate) - Optional -			
				Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)
Insect and Disease Surveys and Technical Assistance	P34	Insect and Disease Control (Sec. 5)	Millions of Acres Surveyed																				
Rural Community Fire Protection	P29	Rural Fire Prevention and Control (Sec. 7)	Applications Approved																				
Fire Occurrence - Man Caused (Protected Area Only)	Z72		Thousands of Fires																				
Acres Protected #	Z93		Millions of Acres																				
Cooperative Fire Loss (Protected Area Only)	Z74		Thousands of Acres Lost																				
Total Rural Fire Prevention and Control (Sec. 7)																							

IS Budget	PL 95-213 Program	Aid Code (FSH 1309.11)	Activity, Output, or Effect	Unit of Measure	FY 1979 (Actual)				FY 1980 (Planned)				FY 1981 (Estimated)				FY 1982 (Estimated)				FY 1983 (Estimated) - Optional -			
					Number of Units	(M\$) Non-Federal	(M\$) Federal	(M\$) Total	Number of Units	(M\$) Non-Federal	(M\$) Federal	(M\$) Total	Number of Units	(M\$) Non-Federal	(M\$) Federal	(M\$) Total	Number of Units	(M\$) Non-Federal	(M\$) Federal	(M\$) Total	Number of Units	(M\$) Non-Federal	(M\$) Federal	(M\$) Total
Cooperative Renewable Resource Management and Utilization	Rural Forestry Assistance (Sec. 3)	T/A Multi-Resource Forestry Management	Reforestation	Thousands of Acres																				
			Technical Assistance for Timber Management	Thousands of Acres																				
			Technical Assistance for Forage Production	Thousands of Acres																				
			Technical Assistance for Wildlife Habitat Improvement	Thousands of Acres																				
			Technical Assistance for dispersed Recreation	Thousands of Acres																				

2) Do not include FIP and ACP.

FS Budget	PL 95-313	Program	MNH Code (FSH 1309.11)	Activity, Output, or Effect	Unit of Measure	FY 1978 (Actual)				FY 1980 (Planned)				FY 1981 (Estimate)				FY 1982 (Estimate)				FY 1983 (Estimate) - Optional -			
						Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)
Cooperative Renewable Resource Management and Utilization	Rural Forestry Assistance (Sec. 3)	Improved Utilization of Wood	W173	Improved Utilization of Wood	Thousands Cubic Feet																				
Cooperative Renewable Resource Management and Utilization	T19 Multi-Resource Management	Technical Assistance to Loggers and Processors	E11	Technical Assistance to Loggers and Processors	Assists																				
Cooperative Renewable Resource Management and Utilization	F05	Water Resource Improvement	J25	Forest Land Management Plans	Thousands Acres																				
Cooperative Renewable Resource Management and Utilization	E24	T51 Recommercial Thinning	E24	T51 Recommercial Thinning	Thousands Acres																				

3/ Do not include FIP and ACR.
4/ Output of E11.

FY Budget	PL 95-313 Program	MNH Code (FSH 1309.11)	Activity, Output, or Effect	Unit of Measure	FY 1978 (Actual)				FY 1980 (Planned)				FY 1981 (Estimate)				FY 1982 (Estimate)				FY 1983 (Estimate) - Optional -			
					Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)
Cooperative Forestry Resource Management and Utilization	Rural Forestry Assistance (Sec. 3)	Improved Tree Seed	Genetic Tree Improvement Establishment	Acres																				
			Assistance to States for Tree Improvement	Rounds of Seed																				
		Seedling Production and Nursery Improvement	Nursery Improvement and Expansion	Millions of Seedlings																				
			Cooperative Seedling Production	Millions of Seedlings																				
	PL 95-313 Program	FSH 1309.11	Activity, Output, or Effect	Unit of Measure	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)	Number of Units	Non-Federal (M\$)	Federal (M\$)	Total (M\$)
Total Rural Forestry Assistance (Sec. 3)																								

Activity, Output and Effect Definitions to be Used in Preparing
Supporting Data for Consolidated Payment Request
Under Section 7, P.L. 95-613, for FY 1990

Cooperative Land and Resource Protection

Insect and Disease Control (Section 5)

<u>P34</u>	<u>INSECT & DISEASE MANAGEMENT - SURVEYS & TECHNICAL ASSISTANCE (SIP)</u>	<u>ACRES</u>
	Planning, directing, and coordinating an insect and disease management program on National Forest System and other Federal lands and technical assistance to State forestry organizations. The surveys are for detection and evaluation of insects, diseases, and environmental pollutants which affect forest vegetation. Technical assistance includes training of Federal and State forestry personnel to properly identify insect and disease outbreaks and prescribe proper treatments, environmental coordination, certification and training of pesticide applicators, management plan inputs, and technology transfer and knowledge utilization.	

Rural Fire Prevention and Control (Section 7)

<u>P39</u>	<u>SMALL COMMUNITY FIRE PROTECTION (SIP)</u>	<u>ADMINISTRATIVE</u>
	Total number of 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000	
<u>Z92</u>	<u>FIRE OCCURRENCE - MAN CAUSED (NES) (SIP)</u>	<u>FIRES</u>
	The measure of the total number of man-caused fires on protected lands. This is a measure of fire prevention activities. It is compared with the current 5-year average to determine activity effectiveness.	
<u>Z93</u>	<u>ACRES PROTECTED (SIP)</u>	<u>ACRES</u>
	This is a measure of the acres qualifying for protection under Section 7 of P.L. 95-613 that actually receive protection. Unit of measure is acres counted at the end of the calendar year.	
<u>Z94</u>	<u>COOPERATIVE FIRE LOSS (SIP)</u>	<u>ACRES BURNED</u>
	The measure of total acres burned on protected lands. This is a measure of overall fire suppression activity. It is compared with the current 5-year average to determine activity effectiveness.	

Cooperative Renewable Resource Management and Utilization

Rural Forestry Assistance (Section 3)
(T/A Multi-resource Forestry Management)

- | | | |
|------------|--|--------------|
| <u>A18</u> | <u>COOPERATIVE TECHNICAL ASSISTANCE FOR</u>
<u>DISPERSED RECREATION (SIP)</u>
Furnishing recreation-related technical help in the development of plans that result in modification of silvicultural practices, or maintenance of an area of forest land for recreational purposes on private, county, or State owned land. | <u>ACRES</u> |
| <u>C11</u> | <u>COOPERATIVE TECHNICAL ASSISTANCE--WILDLIFE</u>
<u>HABITAT IMPROVEMENT (SIP)</u>
Assistance in the development of plans, construction, silvicultural practices, or improvement of forest land for wildlife habitat. Include area that received actual physical treatment. | <u>ACRES</u> |
| <u>D09</u> | <u>COOPERATIVE TECHNICAL ASSISTANCE FOR FORAGE</u>
<u>PRODUCTION (SIP)</u>
Assistance that leads to an increase in the yield or quality of forage on State and private lands for domestic livestock use through development and implementation of improved management practices. Includes elimination of grazing on unsuitable range or to achieve management objectives. | <u>ACRES</u> |
| <u>E19</u> | <u>T/A TIMBER MANAGEMENT (SIP)</u>
Assistance in the layout of sale areas and preparation of timber for sale including advice in sale contracts. Also, assistance for reforestation and TSI activities will be included in this activity. The unit of measure is thousand cubic feet of timber. | <u>MCF</u> |
| <u>E21</u> | <u>REFORESTATION--PLANTING, SEEDLING AND SITE</u>
<u>PREPARATION FOR NATURAL REGENERATION (SIP)</u>
Setting out seedlings, transplants or cuttings, or scattering or placement of seed over a designated area for the establishment of a forest stand; or, the removal of unwanted vegetation, slash, stumps, and roots before natural seed fall (includes hand, mechanical, and prescribed burning treatments). | <u>ACRES</u> |
| <u>E24</u> | <u>TSI PRECOMMERCIAL THINNING (SIP)</u>
The felling, deadening, or removal of trees in a young stand in order primarily to accelerate diameter increment on the remaining stems and maintain a specific stocking or stand density range and also by suitable selection to improve the vigor and quality of the trees that remain. Included is the treatment or disposal of the resulting slash. | <u>ACRES</u> |

F05 WATER RESOURCE IMPROVEMENT

ACRES

Activities carried out on a watershed to improve the quantity, quality, or timing of waterflow. Activities include channel stabilization, sediment retention structures, water yield improvement, flow timing, and other projects designed to reduce sediment or improve water quality, quantity, or timing. Unit of measure is treated acres.

J25 FOREST LAND MANAGEMENT PLANS (SAP)

ACRES

Includes the preparation of written evaluations and recommendations meeting a State's definition of a management plan for single ownerships. The plans deal with one, several, or all forest resources and activities. The purpose is to provide guidance to the forest landowner or manager in developing, protecting, and managing forest land. The unit of measure for this activity is the number of acres covered by the plan.

Rural Forestry Assistance (Section 3)
(Improved Utilization of Wood)

E14 TECHNICAL ASSISTANCE TO LOGGERS AND PROCESSORS (SAP)

ASSISTS

This is the number of all loggers and processors who receive assistance in harvesting, processing, drying or marketing. Activity includes all T/A for protection of wood in use and storage. The unit of measure is the number of loggers and processors assisted.

W73 IMPROVED UTILIZATION OF WOOD (SAP)

MCF

The increased amount of wood that is annually made available for utilization due to Federal and State cooperative programs: harvesting improvements, wood processing, drying improvement, etc.

Rural Forestry Assistance (Section 3)
(Seedling Production and Nursery Improvement)

E18 0002 SEEDLING PRODUCTION (SAP)

SEEDLINGS

Seed testing, and Forest Tree Nursery management activities. The unit of measure is millions of seedlings produced.

E31 NURSERY IMPROVEMENT AND EXPANSION (SAP)

SEEDLINGS

All construction-reconstruction, acquisition of additional equipment, and increase in seed stores to be financed to support an increased level of seedling production for reforestation. Unit of measure is million of seedlings of added capacity.

Rural Forestry Assistance (Section 3)
(Improved Tree Seed)

- E20 ASSISTANCE TO STATES FOR TREE IMPROVEMENT (S&P) POUNDS
Tree improvement activities and reforestation related activities on non-Federal forest lands. The unit of measure is pounds of improved seed.
- E27 GENETIC TREE IMPROVEMENT ESTABLISHMENT (S&P) ACRES
The activity includes work process that will result in future yield increases resulting from the availability of genetically superior planting stock or seed such as establishment of improved seed production areas or seed orchards. Unit of measure is acres of seed production, seed orchard, and progeny testing areas established.

Urban Forestry Assistance (Section 6)

- H11 TECHNICAL ASSISTANCE - URBAN AND COMMUNITY FORESTRY (S&P) URBAN AREAS
Assistance provided for projects leading to a final product, such as an open space plan, a program for utilizing wood fiber rather than burning or dumping useable wood in city landfills, developing an educational program, drafting a tree ordinance, carrying out a street tree survey, evaluating a pest problem, constructing a slide show, promoting a site plan with a developer, etc. Depending on type of project, it may be a single community, multi-county or Statewide. The unit of measure is the number of urban areas assisted.

Management Assistance, Planning Assistance, and Technology Implementation (Section 6)

- J27 COOPERATIVE FOREST RESOURCE PLANNING (S&P) ACRES
Included plans developed with assistance from Forest Service personnel, and/or Federal forestry funds. Activity includes cooperative work with State forestry agencies to develop State and multi-county resource plans. Examples are: State Forestry (Range) Resource Plans, or multi-owner multi-agency plans to meet Coastal Zone Management; Water Quality Planning (PL 92-500); HUD 701; Surface Mine Control and Reclamation plans; and similar planning efforts. This includes an analysis of the current and projected forest land resource situation and development of long-range alternatives for meeting future resource needs.

C. State and Substate

In the absence of good forest resources input, many statewide and substate plans have considered forests as open space to be developed for purposes other than forest resource uses. Land Use and Economic Development Plans are in this category. Other statewide plans such as the State Comprehensive Outdoor Recreation Plan (SCORP) and Water Quality Plans (208), discuss forest resources; but, only from a narrow point of view. Statewide forest resources planning must consider the content of all of these plans before decisions are made. Close coordination should take place where plans are being simultaneously prepared or updated. Mutual understanding of planning objectives should strengthen all planning efforts.

Chapter VII - Implementation and Monitoring

A. Implementation

The primary goal of forest resources planning should be to develop a plan that will be implemented to solve problems. The following should be considered for successful implementation:

1. Internal Commitment

No plan can be implemented if those who are responsible for directing and carrying out the prescribed actions are not committed to the plan. Commitment comes from involvement in the planning process from start to finish. Involvement means being completely informed and being given the opportunity to participate in the decision-making process where there is a need or interest to be involved.

Internal commitment also comes from common expectations of what is to be accomplished by the planning process and the actions prescribed in the final program. All persons affected must have an opportunity to have input to priority setting.

Every effort should be made to make the final product "our" plan, not "your" plan. Commitment breaks down when one group in an organization can point to another and say, "That is your plan."

2. Problem Solving

Energy within an organization usually cannot be redirected with any success except to solve a significant problem. People can be ordered to take action on problems not related to their area of responsibility, but, the results of their efforts will usually not reflect their performance potential.

3. Budget Process

Successful implementation depends on how well prescribed actions can be incorporated into existing budget systems. It is very unlikely the budget system or process will be significantly modified to implement a plan. For this reason, it is extremely important for the planner and key individuals in the planning effort to be completely familiar with the budget system and how it works, from the agency to the legislature and back. Key people in the budget process should be thoroughly informed and involved throughout the planning process to achieve maximum compatibility between the two processes.

4. External Commitment

Many external publics, or those publics outside the agency, have the ability to directly or indirectly affect the outcome of the planning process and implementation of the final program. A vigorous Public Involvement Program throughout the planning process is essential to successful implementation. Public involvement cannot be "eye wash." It must be sincere. (See Chapter III, Public Involvement.)

5. Continuity of the Planning Effort

Many well conceived plans are abandoned when key people in the planning and management organization leave or move to new jobs. While this risk cannot be eliminated, it can be minimized.

It is important for several people to know the details of the planning process. It is also important for the planning process to be visible and completely documented. The rationale for each decision must be available for review by new managers. The links between each planning step must be clear for the logic of the decision process to be tested.

The planning process should maintain as much flexibility as possible for decisionmakers to cope with future change. Don't foreclose any future options unnecessarily. Where future options are foreclosed or where long term commitments are made, they should be fully documented, along with expected effects of such decisions.

6. Decisions and the Process

Where the planning process becomes an end to itself and all inputs and decisions must fit the process, regardless of whether or not it's the rational thing to do, the resulting plan will probably not be implemented. Reason and common sense must rule. Don't make decision needs fit the process, make the process fit decision needs.

7. Change

There is a tendency within all organizations to resist change. Since change is a natural result of issue oriented planning, implementation of any plan will meet some resistance. The degree of resistance will depend on the amount and timing of change. Drastic change overnight will meet more resistance than minor redirection of a current

program over a long period of time. The urgency of a problem and consequences of no or slow change will dictate how much change is necessary over what period of time. The key is to find the minimum amount of change necessary to achieve acceptable results.

8. Clear Direction

If a plan is to be successfully implemented, the objectives must be precise and easily understood. The plan must clearly state who has the authority and responsibility to meet the objectives. The expected results and effects must also be clearly stated along with any other criteria to be used to determine if the objectives have been successfully met.

B. Monitoring

If planning is to be successful, there must be a method for measuring the results of implementation. If actions prescribed by the plan are not achieving their intended purposes, the responsible manager needs to know how serious the problems are and what is causing it. Once this information is obtained he can determine if corrective action is needed and how, where, and when to take it. The results of these actions must also be monitored.

1. During the Process

The decisionmaker and his staff should begin early in the planning process to decide what kinds of information they will need to evaluate results of the program. They should also begin deciding the acceptable range of results. The criteria should be refined as the process moves toward completion. This refinement process will help the planner develop the final program so monitoring can be a natural outgrowth of the planning process.

2. Monitoring Plan

The monitoring plan should document the final results of the criteria development efforts made during the planning process. It should also spell out who will be responsible for reporting and analyzing results and for taking corrective action. The methods and timing of these activities should also be specified.

3. Reporting

Reporting refers to the full range of activities involved in providing feedback concerning results of implementation. It can be the worker on-the-ground telling his boss

things are not turning out as expected, or it can be a formal year-end report to the responsible decisionmaker. Both of these examples and the full range of reporting activities in between are essential to the monitoring process. It is important for reported information to reach the individual with the authority to take timely corrective action.

Formal reports should only be made as often as necessary and where possible fit into existing reporting procedures. It should be clear who will prepare the report and who will receive it. The report schedule should be specified.

The format of formal reports should facilitate analysis and comparison to monitoring criteria.

4. Analysis of Reports

When results and effects of prescribed actions exceed the range of acceptable results, a thorough analysis of the situation is needed. The specific cause of the problem must be found before any action is taken. There is a tendency to conclude the plan was deficient and take immediate corrective action. In reality the prescribed action could have been correct, but, not carried out as planned. It could have been an organizational problem, poor communication, or just plain wanting to "do it like we have always done it."

If the root of the problem is the plan, a careful analysis must be made to determine the precise cause. The problem may be basic and require substantial changes or minor changes and require some fine tuning. Hasty conclusions can cause unnecessary replanning.

No plan is perfect and if it were it would not remain so because of constantly changing conditions in the planning environment. Change in the plan is inevitable, if it is to remain viable.

5. Recommended Action

Recommended corrective action should be based on the analysis of reports and tempered by reason and common sense. If corrective action is prescribed when results are within the established range of acceptable results, the range should be adjusted and the reasons documented. Normally no action will be prescribed in this situation. (See Figure 13 for example of acceptable output ranges.)

OUTPUT TARGETS
AND
ACCEPTABLE OUTPUT RANGES
(1980-2000)

ISSUE #3
(Task 230)

Lumber demand not
being met.

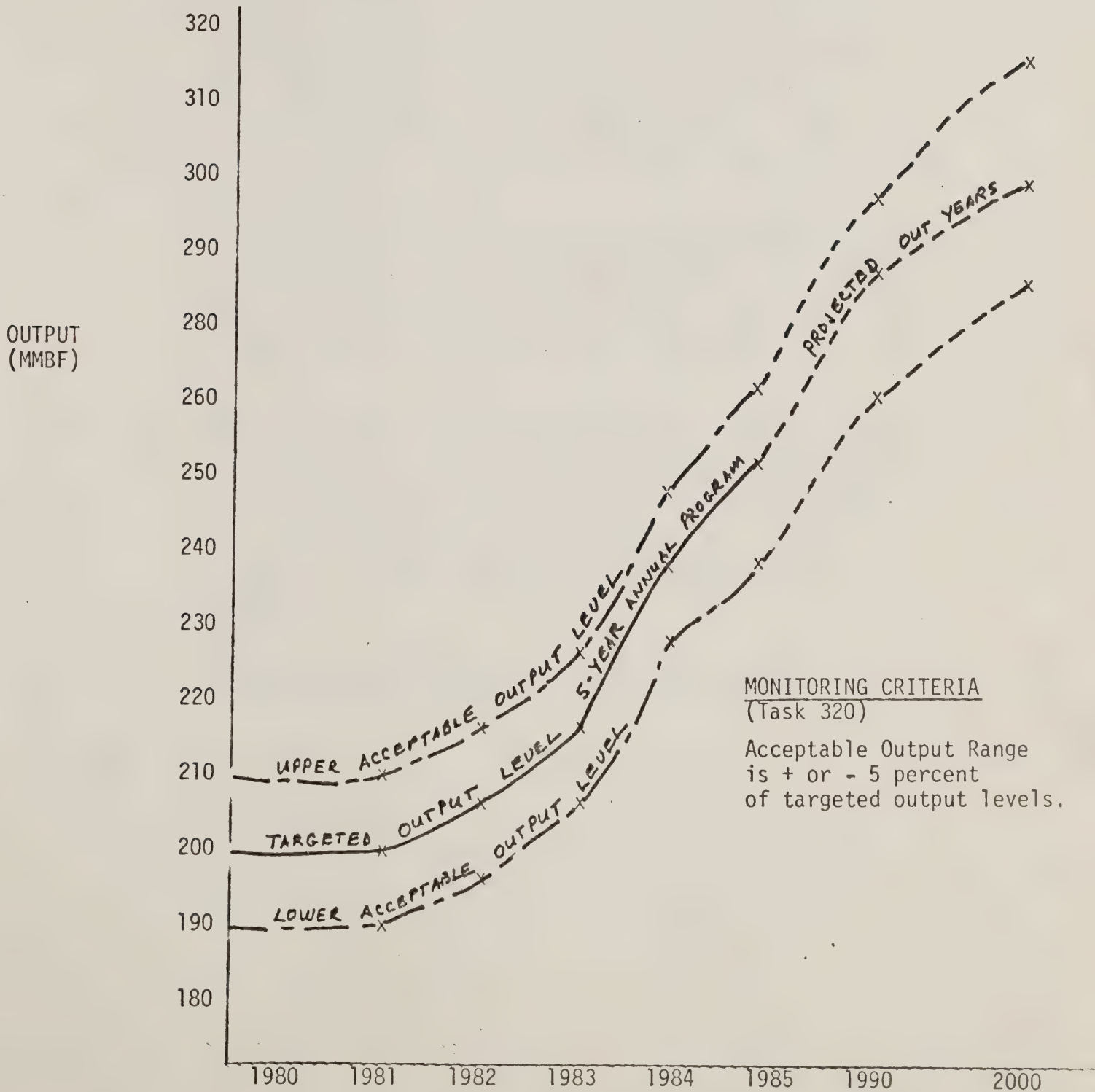


Figure 13

The recommended action should state who will take it, when, and what the expected results will be. The results of this corrective action will be monitored just like the rest of the plan.

6. Review and Update

The final program should be reviewed annually in light of program monitoring results and changes in environmental, social, economic, and political factors. Fine tuning, or minor updates, can be made during these reviews. Where major flaws are found in the program, it may be necessary to undertake a major update. A major update does not mean scraping the entire existing program and all the background information used to develop it. It means a thorough review and making changes where needed. Major updates will usually require a substantial amount of public involvement to maintain agency credibility.

The most important point is to not continue to pursue a course of action which is not achieving desired results. Periodic updates are analogous to driving a car. Slight, periodic adjustments in speed and direction can avoid crisis evasive action to avoid running off the road. Crisis action should only be needed when major unforeseen events occur which require immediate action.

Scheduled major updates should be used to make a thorough analysis of the program effectiveness in light of established long term goals and objectives. A new set of long range objectives and monitoring criteria should be developed at this time. The update should also be used to assess the cumulative effects of fine tuning since original program development and to review and update, where necessary, all the information used in the planning process.

Where major changes are made as a result of these scheduled updates, substantial public involvement will be needed.

Chapter VIII - Planning Pitfalls

Following are some pitfalls likely to be encountered in attempting to formulate a State Forest Resources Program Plan. They are offered here to enable the planner to consider them from the outset of the planning effort and to get a jump on dealing with them before they drain time and energy from the planning effort.

Overemphasis on Talking Versus Doing.

An overemphasis on "talking about" could be the biggest pitfall in the whole effort--that is, it is an easy and time wasting exercise to repeatedly discuss concepts and not "roll up the sleeves" and actually develop a Statewide Forest Resources Plan.

Overemphasis on Process Versus Product.

A preoccupation with process sometimes becomes an obstacle to getting the job done. The Planning Concept Document should be continually revised as needed to facilitate development of products rather than the other way around. Revision of a process, for example to show new steps, is probably second or even third order in importance to developing useful products.

Overemphasis on Defining Terms.

Another frequent obstacle to getting the job done is an overemphasis on how to define terms such as issue, goal, objective, and the like. This obstacle can be overcome by choosing working definitions or interpretations and moving on without belaboring whether the "right" definition was chosen. Results appear to validate this as a viable approach.

"Issues."

People have their own ideas of what an issue is. When it is not the same as that of someone else involved in the effort, or as the working definition chosen for the effort, the resulting confusion can be an obstacle difficult to overcome.

Timeframe

It is difficult to keep people committed and actively involved in an intensive effort, such as production of a State Forest Resources Program Plan, for more than one year or so. People seem to lose dedication if they do not see substantive end results by that time. Also, transfers and other changes

in personnel typical of many State Forestry organizations mean that individuals involved may not be around to see the project through if it goes on too long. A workable approach is to design the job so that at least a part of the overall plan can be completed within a year to eighteen months. Revision and extension can be pursued later. It is well to get through the process with tangible products in a specific period of time rather than to belabor steps in the process causing it to continue indefinitely.

Overemphasis on Data.

Substantial progress can be made using existing data which is not particularly sophisticated. The job consists of getting ideas as well as the relationships among parts of the present program clear. While identification of data needs and analysis of data will definitely be required in plan formulation, it is important to reach a balance between data gathering and conceptualization of how the whole Program Plan fits together.

Line Commitment.

Involvement and commitment of the highest level decisionmaker is mandatory. Developing a Forest Resources Program Plan, especially the first time around in a formal planning activity, requires time and commitment by staff and field personnel which in turn requires commitment by their supervisors. It literally requires that supervisors become planners at some point in the process and that they provide direction to the staff and field personnel on reworking and revising planning products and sign off on completed interim and final products. The planning team members revert to planning coordinators or facilitators at this point. Persons support what they help create; in this lies an important axiom to achieving both line and staff commitment.

Overemphasis on Detailed Rigid Work Plan.

There is a need to keep the work plan flexible and open-ended throughout the effort. Conditions change, sometimes drastically, over the course of plan development. For instance, objectives of the effort may change, personnel may change, available budget may change. The planner must be sensitive to and able to respond to these changes by refocusing the work effort both formally and informally, such as altering time-frames, and the like. Thus, preparation of an initial work plan can be a brief, straight-forward exercise rather than an elaborate, time consuming phase of the planning process.

Overemphasis on Status Quo.

An almost overwhelming obstacle which may arise throughout the planning effort is the tendency for people to do things as they always have. It is very difficult to conduct planning in the spirit of considering new innovative approaches. It may be necessary to settle for marginal changes in the near term -- instilling a mode of innovation and creativity may only be feasible in the long term. The planner may need to exercise creativity and leadership in trying to break out of this "status quo" mode.

Unrealistic Expectations.

People in general often seem to develop expectations that a planning effort can solve all problems, and may anticipate that a planner can do much more than is humanly possible. It behooves a planner to act early to establish realistic expectations and prevent embarrassing and costly failures in the eyes of others. Utilizing a team approach to experience collaboration and mutual support rather than isolation and turning inward may help prevent this problem.

Reluctance to Expose Problems.

There may be a hesitancy by the planner and others on the staff to expose some real problems facing an agency. It is often easier to say just the right words, for instance regarding the need for coordination, than it is to point out specific problems that arise as a result of lack of coordination with other agencies, special interest groups, and the like. The planner's responsibility is generally to identify the problem and provide alternative options or opportunities for resolution. In general, it is the responsibility of management, not the planner, to remove such references from written documents.

This Chapter was extracted from State Forest Resources Program Planning. Understanding and Application, 1978-79. State Foresters and States in Regions 1, 2, 3 and 4, prepared by USDA Forest Service and INTASA, Inc.

APPENDIX A

Glossary of Terms

1. Activity - A specific action taken to carry out a strategy.
2. Alternative* - The different means by which objectives or goals can be attained.

They need not be obvious substitutes for one another or perform the same specific function. (US Forest Serv. 1972B)
3. Annual Program - A complete list of objectives to be accomplished by an agency or agencies during a one-year planning period.
4. CFA - Cooperative Forestry Assistance Act of 1978.
5. Criteria* - a. Measurements which are used to examine the relative degrees of desirability among alternatives or the degree to which a course of action meets an intended objective. (US Gen. Account. Off. 1969) b. Predetermined rules for ranking alternatives in order of desirability to facilitate and expedite the decisionmaking process. (US Forest Serv. 1972B) c. A rule, or test, by which something can be judged. (US Forest Serv. 1971)
6. Five-Year Annual Program - A series of five annual programs designed to meet 5-year objectives established for a set of issues.
7. Forest Plan - A plan required by the National Forest Management Act Regulations to guide long range management and use of lands in the National Forest System. One Forest Plan may be prepared for all lands which a forest supervisor has responsibility, or separate Forest Plans may be prepared for each National Forest, or combination of National Forests, within the jurisdiction of a single forest supervisor. (Fed. Reg. Sept. 17, 1979)
8. Forest Resources - A group of resources associated with forested lands which include esthetics, fish and wildlife, forage, outdoor recreation opportunities, timber, and water. (CFA of 1978)
9. Goal* - a. A concise statement of an organization's central strategy in addressing a problem expressed in terms of a desired state or process that operating programs are designed to achieve. A goal is normally expressed as a broad, general statement, is usually not quantifiable, and is timeless in that it usually has no specific date by which it is to be completed. Often, it would not be expected that a "goal" could ever be completely achieved. The "goal" is the principal statement from which objectives must be developed. (USDA Off. Manage. and Finance 1974) b. Characteristically, "goals" are enduring statements

of purpose, often not attainable in the short term, and frequently incapable of expression in quantifiable terms. (US Forest Serv. 1972B)

10. Issue - Any concern, conflict or unfulfilled opportunity considered to be important by any segment of the public, including agency personnel.
11. Issue Assessment - A complete description of all the factors causing an issue to exist along with an analysis of the cause and effect relationships of these factors. It also includes an analysis of past and present trends and assumptions about the future as well as an analysis of past and present efforts to deal with the issue.
12. Issue Objective - An objective statement of what should be accomplished within a five-year, or longer, period toward meeting an established long range goal for resolving an issue.
13. Mission* - A major, continuing problem or concern that programs are designed to address. Missions represent the basic reasons for existence of an organization in a governmental agency and characterize an organization's role in solving problems. (After US Dep. Agric. Off. Manage, Finance 1974)
14. NFMA - National Forest Management Act of 1976.
15. Objective* - a. A clear and specific statement of planned results to be achieved within a stated time period. The results indicated in the statement of objectives are those which are designed to achieve the desired state or process represented by the goal. An objective is measurable and implies precise time phased steps to be taken and resources to be used which, together, represent the basis for defining and controlling the work to be done.

An objective must include four essential elements. (1) It must state the desired outcome--i.e., what is to be accomplished. (2) It must indicate the time period within which the expected outcome is to be achieved. (3) It must include measurement factors, such as quantity, quality or cost, so that the fact that the objective has been accomplished can be verified. (4) It must indicate who is responsible for achieving the indicated results. Desirable, but not absolutely essential, elements of objectives are a description of how it will be achieved and an indication of who will determine whether the result has been achieved. (USDA Off. Manage. Finance 1974)

b. The specific, attainable ends toward which concentrated effort is directed.

When achieved, objectives represent significant and measurable progress toward the attainment of a broader, longer range "goals."

Characteristically, objectives are subordinate to "goals," are narrower and shorter range in nature, have a reasonable probability of attainment within specified time periods and resources, and are attained through measurable and quantifiable achievements. Expected results are defined in terms of milestones accomplished, services produced, or some other objective measure, even though the specific contribution toward achieving the building block objective may not be measurable. (US Forest Serv. 1972B)

16. Plan* - Statements in words and graphics of the findings, conclusions, proposals and recommendations of the planning process. When adopted "plans" become public policies and programs.

"Plans" are working instruments--guidelines for administration, but not end products. As such, plans are never completed. Plans are subject to change as policies change due to unfolding events, such as changing standards of life style, environmental factors, and advancing technology. (US Civil Service Commission 1973)

17. Program* - A coordinated organization endeavor which is defined in terms of the various activities required to produce specified final outputs and end results. (US Forest Serv. 1972B)

A major agency endeavor, mission oriented, which fulfills statutory or executive requirements, and which is defined in terms of the principal actions required to achieve a significant end objective. (US Gen. Account. Off. 1969)

18. RPA - The Forest and Rangeland Renewable Resources Planning Act of 1975.

19. Regional Plan - A plan required by the National Forest Management Act Regulations for each Forest Service administrative region to provide National Forests with goals and objectives, regional issue resolution, and program coordination for National Forest System, State and Private Forestry, and Research. (Federal Reg. Sept. 17, 1979)

20. Strategy - a. A consideration of alternative means to reach an objective. (US Forest Serv. 1971) b. A carefully thought out plan or method for achieving a goal or objective. (After Webster 1963)

*These definitions were taken from the Wildland Planning Glossary, Pacific Southwest Forest and Range Experiment Station, USDA Forest Service, General Technical Report PSW-13/1976.

PLANNING PHASE: _____

TASK: _____

Description: _____

Product: _____

Public Involvement Task: _____

Planned Completion Date: _____

Considerations:

Date: _____
Supercedes: _____

PLANNING PHASE: _____

Description:

TASKS

Date: _____
Supercedes: _____

